Conditions of Life Altered by Machinery

This has been a most materialistic century, an age of mechanism. We have progressed wonderfully in our capacity for luxury, extravagance, comfort. One hundred years ago our forebears were content to live by hand, as it were. Now we live chiefly by compilcated machinery. A century of progress has created demands which forced the dormant inventive skill of the world to put forth its best efforts. The world has made more progress in material things in the last 100 years than it did in all the centuries preceding. Civilized man's mode of existence has been totally altered by his inventions.

The world has gone patent mad. In the United States alone there were 623,535 patents granted in the sixty-two years from 1837 to 1898. During its existence the patent office has received more than $40,000,000 in fees. On carriages and wagons more than 20,000 patents have been granted; on stoves and furnaces, 18,000; on lamps, gas fittings, harvesters, boots and shoes and receptacles for storing, 10,000 each. The total of patents for the civilized world is easily twice that of the United States. Thanks to these hundreds of thousands of contrivances, what were luxuries to our forebears of 1800 are commonplace of existence to all classes, rich and poor, in 1900.

With the invention of the steam engine the world shrunk at a bound to a twentieth of its former size. Its vast distances ceased to be formidable. Where the lumbering stagecoach or the plodding caravan took weeks the flying express covers the distance in a few hours. The trip across this continent used to be a matter of life and death. Now it is a matter of $100 and take your ease as you go. Without the railroad a close-knit nation, thousands of miles broad, such as this country, would have been an impossibility. In 1825 the first steam railroad was opened between Stockton and Darlington, England. A year later a similar experiment was tried at Quincy, Mass., where the engine hauled stone for a distance of four miles. The first passenger road in this country was the Baltimore & Ohio, opened in 1830 with a mileage of fourteen miles. Today there are 210,906 miles of railroad in this country, 163,216 in Europe, 26,834 in South America, 31,102 in Asia, 9,978 in Africa and 14,384 in Australia.

Early History of Railroading.

Early in the history of railroading twelve miles an hour was considered recklessly fast. In January, 1899, a train on the Burlington route, in a run from Siding to Arion, 2.4 miles, did the distance in one minute and twenty seconds, or at the rate of 108 miles an hour. The Empire State Express made a record of 112 miles an hour in May, 1893.

Marine travel did not make so wonderful an advance in speed through the agency of steam as did land travel, but the progress in comfort and safety was greater. In 1790 John Fitch constructed a steamboat and was considered a raving lunatic. This opinion was confirmed when his experiment proved a failure. Seventeen years later Robert Fulton, another so-called visionary, backed by Joel Barlow and Robert T. Livingston, built the steamboat Clermont. She was soon dubbed "Fulton's Folly," and when she started for Albany on August 11, 1807, all New York was out to witness her failure. She went to Albany in the astonishing time of thirty-two hours, returning in two hours less. Now, when a gigantic ocean liner, with lifeboats as large as the Clermont, crosses the Atlantic in less than six days, we read the news in a bored sort of a way, displeased that steamers should be so slow. Fulton's experiment led, years later, to the building of the Savannah, which actually crossed the Atlantic, to the great astonishment of the entire world.

Communication between man and man was as expensive as it was slow in the old days. It cost a shilling to get a letter anywhere when the century began and a shilling in those days represented far more than it now does. Now 2 cents will carry a letter to the Philippines or around the corner. Then the mail matter handled was too insignificant for statistics; now there are 75,000 postoffices in this country handling postal matter of all kinds per annum of 6,576,310,000 pieces.

As for "hurry messages" or "rush" letters, they were unknown. Prior to the experiments of Samuel F. B. Morse, inventor of the telegraph, signaling was done by means of fires on mountain tops, or by waving flags. Morse revolutionized this in 1837, when he announced the success of his experiments. The first telegraph line in this country was opened in 1844. In 1899 there were 904,633 miles of wire in use in this country; 71,393,157 messages were sent that year. Now we are on the threshold of an era when even wires will no longer be necessary and when we will be able to talk or to telegraph to Boston or New Orleans or perhaps even London without any visible connection between the receiving and the sending instruments.

The year 1800 knew no telephone. A hundred years later sees 772,989 miles of telephone wire in use, connected with 465,180 stations and answering 1,231,000,000 calls a year. When the century was new it took six weeks to get news from Europe. Today it takes six seconds. Today there are 170,950 miles of submarine cables—all laid since the first cable. Field's great achievement was laid in 1857.

Electricity has come to the aid of steam in traffic. Edison must be credited with the construction of the first successful electric road, that which he operated in 1880 at his home at Menlo Park, N. J. Since then electric traction has developed to such an extent that now there are more than 1,000 such street car lines in operation in the United States, with a capitalization of $1,700,000,000. The same electric power, only dimly known before the wonderful century, now lights our cities. In the United States there are 500,000 arc lights and about 20,000,000 incandescent lights—the latter being equivalent in light-giving capacity of 320,000,000 candle tips such as they used in 1800.

While the railroads have served to diffuse the population from one end of the land to the other another invention has served to centralize it—the elevator. Because of it the huge skyscrapers, the immense flat houses and the great factories have been made feasible. Formerly when Shanks, his mare, was fashionable, people had to climb stairs. This tended to low buildings and the consequent spread of population. The elevator has changed all that. Huge caravansaries teeming with human beings, accommodate as many as formerly could be crowded into respectable towns. The elevator makes practical the centralization of commercial interests, which is the basis of our great cities.

Age of Steel Is Here.

The science of applied mechanics has reached a stage where further improvements seem impossible, yet every day new inventions and improvements on old, are recorded at the patent office. In other times they built houses of wood and brick. Now they construct them of steel and iron. And so carefully are the plans developed that the architect can say how many bolts will be required in the construction of a sky-scraper, how much each beam can support, where each piece of iron belongs. Wooden bridges have been supplanted by huge steel structures. Even stone towers are being abandoned for the lighter steel. The age of steel is here.

Our vast factory systems, employing thousands of workers and furnishing necessaries and luxuries alike at prices that would have made the citizens of 1800 gasp with amazement, have grown out of the substitution of machinery for the hand—the sewing machine, the steam loom, the ring frame and hundreds of other inventions. We do not yet grow crops by machinery, but no sooner has the fruit of the earth reached maturity than it is in the grasp of steel and steam, to be turned to human needs almost without the touch of human hands.

Photography is a product of the last hundred years. To have one's picture "took" in ye olden times required considerable money and more patience, for it took some time to paint the portrait. Daguerre's daguerreotypes, the forerunner of the photograph, hewed the way for the development in this line of the last ten years. Photography and color printing together have been among the mightiest educational influences the world has ever known. Appealing to the brain direct through the eye they have taught more swiftly and more widely than is possible to any other agency. To science their aid has been inestimable.

No man can judge of the influence of the printing press, which did not reach any considerable development before 1800. In 1800 the principal daily papers were published in Boston and New York City. They were marvels of staid conservatism. They permitted no news younger than a week to creep into their columns. As for the paper on which they were printed, respect for age prevents a description. The type, hand-made and hand-set, leaned either all one way or in any direction most comfortable. It may have been superlative work for those days, but nowadays new type is cast while being set; paper comes in rolls from two or four miles long; presses run off 80,000 complete newspapers an hour. The press, which is the most powerful agent of progress, is in itself typical of the advance of the century.

BRITISH ARMORED TRACTION TRAIN READY TO START FOR THE FRONT.

Armored Traction Trains

Armored traction trains have been found useful by the British forces in South Africa to a sufficient extent to establish them as a fixture in warfare. They run on any reasonably smooth roadway, and, though they travel slowly, they can carry great loads. The accompanying picture shows one of these trains in Capetown, South Africa, ready to start for the front. The movable sides, which are of sufficiently heavy armor to resist rifle or artillery fire, have gun ports through which the defenders of the train may return the enemy's fire. The locomotive is protected by extra heavy armor. The train in the picture has two heavy field guns in tow.

In a Blue Funk

"Joe Stark, the trick cyclist, who was killed doing a high dive in New York the other day, traveled for a season with Davis' circus," said a young man to the New Orleans Times-Democrat. "I was with the show at the same time, on the business staff, and I got to know Joe very well. I see by the papers that his death was due to a miscalculation of over thirty feet in the dive, and the reporters are wondering how in the world he could have made such a blunder. To anyone acquainted with performers of his class, however, the thing is no mystery. They are all subject to queer spells of panic that come without any particular reason and unfit them temporarily for business. If a man persists in doing his act at such a time the consequences are altogether a matter of chance and the majority of the accidents within my recollection have been attributable to that cause.

"While I was in the show business I witnessed several striking instances of this mysterious loss of nerve, perhaps the most remarkable being that of a little Englishman who did a very sensational act on the flying trapeze. He had two bars suspended at opposite sides of the ring, about forty feet from the ground, and finished his performance with the feat that is called 'echelle,' in the slang of the circus. I don't know where the word comes from, but in doing the turn the gymnast sw as far as he can on one trapeze, lets go, throws a somersault and catches the other, the danger depending on the distance he travels through the air. The Englishman was a slow-spoken, rather stupid little fellow, who had been brought up in ... ring and was as nearly destitute of emotion as anybody I ever saw. His habits were excellent, like those of most professional athletes, and he did his work with a mechanical precision that almost excluded the possibility of a mishap. One night his helper got drunk and I went with him to the little aerial platform from which took his long swing, for the purpose of holding back the bar while he got ready to launch himself into space. As busying myself with the ropes I heard him groan, and, looking around, was thunderstruck to see him as white as a sheet and trembling like a man with the ague. 'What's wrong, Fred?' I whispered. 'Oh, Lord!' he said between his teeth, 'I'm just in a funk, an awful funk!' I was so astonished I could hardly credit my senses, but I realized that something would have to be done to prevent a fiasco that would ruin him in the business. 'Pretend you've sprained your arm,' I said, 'and leave the rest to me. Now, let's get down, quick.' He was so unnerved he could hardly descend the rope ladder, and the audience began to buzz with surprise. I sent him to the dressing tent and said a few words to the ringmaster, who made a little speech explaining that 'Mr. —— had injured his arm climbing to the platform and w be obliged to omit his usual finale.' Later on I found the poor fellow lying on his costume trunk sobbing like a child, but next morning he was all right and I never knew him to have another seizure.

"You may rest assured Joe Stark met his death through just such an unaccountable collapse. It probably took him as he started to make his dive and pride forbade him to hold back."

Three Washington Buds

The blood of distinguished statesmen—distinguished in curiously different ways, it is true—flows in the veins of three of this year's beauties.

The granddaughter of General Grant will charm representatives and officials in the capital city, the great-grandniece of George Washington will make her bow on the island of Manhattan, and the daughter of Senator Mark Hanna, pretty little Miss Ruth, will go back and forth between the salons of Cleveland and Washington.

Nellie Grant Sartoris' eldest daughter, Vivian, recalls "pretty Miss Nellie" as she must have looked when General Grant and, indeed, a whole nation of admirers used to call her "Little Sunshine." Vivian Sartoris has wavy brown hair that people frequently describe as black, because they see it in a room where there are more shadows than sunlight. She has big, gray eyes, set in an olive skin and shaded by well-curved brows. She is English in coloring and health, but in everything else, especially since her mother asked congress to restore her citizenship, she is American. Washingtonians have adopted her as a child of the nation.

Little Miss Hanna, the youngest daughter of the senator, is never described as a home body. She is an outdoor girl in the fullest sense of the term. Two years ago she established her fame as a Diana by chasing down a wildcat on her father's premises in Thomasville, Ga.

Senator and Mrs. Hanna happened to be entertaining a large house party at the time, among them the president and Mrs. McKinley.

The boundaries of the senator's preserves, among the finest in Georgia, are guarded as carefully as may be, but occassionally wildcats and other small animals from the adjacent pine woods find their way in. Little Miss Ruth became aware that a large wildcat had been seen trespassing, and, nothing daunted, she planned a campaign against his life with a success that marks her a typical child of Senator Mark Hanna.

She and her cousin, Howard, accompanied by trained hounds, made what may be called a daylight start. Through sandy fields and thick mud, the young woman chased the cat until finally he was run up a tree. Then she fired the shot that brought him to the ground.

An hour later, while the family and their guests were at breakfast, Miss Ruth walked in with her wildcat and established her fame to the title of Georgia's Diana.

The last of this trio of buds, Mary C. Washington Bond, the great-grandniece of the father of his country, is also a pronounced brunette. She is pale, with a pallor made striking by heavy masses of dark hair and wide open black eyes, shaded with heavy lashes.

Although Miss Bond has been but little seen in society, she is already famous for her beauty. Peter Marie, in his "Collection of American Beauties," selected her for one. She appears there as a lovely, smiling creature, holding a fleecy veil of white over her dark locks. She has on an old-fashioned satin gown, short-waisted, low-necked and short-sleeved, caught in front with a bunch of field flowers.

BIRDSEYE VIEW OF THE PAN-AMERICAN EXPOSITION BUFFALO, MAY 1, TO NOV 1, 1901.
GROUNDS HALF A MILE WIDE, MILE AND A QUARTER LONG — 350 ACRES
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A Brutal Picture-Taker

Indianapolis Sun: The photographer had just completed all arrangements for the sale of his studio, when the pretty young miss of seventeen summers tripped in.

"I want my picture taken," she simpered. "Do you think my face will break the camera?"

"Not this camera," said the photographer, just as simperingly, "it is provided with double extra strong lenses."

Of course the miss of seventeen summers immediately flounces out and goes to the rival photographer, who, when she springs the joke about her face and the camera, joins with her in a hearty laugh.

Where Snow is a Rarity

Some years ago in the month of December a jeweler of Sydney, New South Wales, Australia, paid a man to collect a freight car full of snow in the mountains and deliver as much of it to him as he could. On Christmas day in the jeweler's window was a huge snowball, resting on a deep iron tray, and when the news spread about the city traffic was blocked for several hours until the novel sight had melted. Men who had not seen snow for forty years, when they emigrated from the "old country," hobbled out among the crowds and people swarmed and struggled to get a glimpse of what they looked on as a sort of eighth wonder of the world.