Achievements of the Nineteenth Century

THE ACHIEVEMENTS OF THE CENTURY IN MATERIAL PROGRESS AND DEVELOPMENT.

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WE are about to bid, or have bidden, farewell to the most remarkable century known in the life of humanity. It is becoming that we should appreciate the benefactions of the nineteenth century, if we are to take up aright the responsibilities of the twentieth. There is a duty of looking backward as well as of looking forward. Ingratitude is one of the basest sins. Yet how often we see children living as though they owed nothing to their parents, and were too wise to learn anything from the past.

Perhaps the greatest interest in the nineteenth century will ever centre around the development of science and the progress of mechanical inventions. The way these have transformed the character as well as the life of the people will, in the future, be regarded as the miracle of the century.

One hundred years ago the settlers in this new world sowed their grain by hand, harvested it with sickles, threshed it with a flail, winnowed it by tossing it into the air, and made it into flour by pounding it in a wooden mortar with a wooden pestle. The transition to the machine which now passes over a western wheat-field cutting the grain, threshing, winnowing and leaving it in sacks upon the ground, marks only one of the lesser developments of the century.

Our grandfathers made their journeys to mill or port by ox-team through the forest, following a road marked by blazes on the trees. Their grandchildren may cross the continent in five days in a palace car amidst comforts and luxuries that even a king could not purchase one hundred years ago. How much this change in the mode of travel means to us we can hardly conceive. For instance, in England where they had good roads, and fast horses, the news of the battle of Waterloo, travelling by post-chaise, took two weeks to reach some of the remote parts of the kingdom. In the year 1820 a Scottish minister was still offering up prayers for King George III., two weeks after his majesty had departed this life. At these posts of the coach lines "a ha'porth of news" was bought and sold like any other commodity. A member of Parliament who had ridden from Edinburgh in three days was warned of the danger of such reckless travel, instances being cited where persons had died from mere rapidity of motion! The poor must of necessity travel on foot, so but little was done. Each community lived apart by itself, cherishing its own superstitions and prejudices, and remaining local in its sympathies.

On the sea people travelled in sailing vessels, amusingly uncertain as to when or how they would make the desired port. The Atlantic ocean might be crossed in a month, but it more frequently took three. When steam had come into practical use, and it was proposed to cross the ocean by means of that power, eminent scholars mathematically proved that no vessel could ever be constructed that could carry enough fuel to propel it across the ocean. The stages by which we have come up to the "flying express" and the "ocean greyhound," form a romance of itself. Suffice it to say that for a few dollars now we call no land foreign, and the ambitious "globe-trotter" may pass around this mighty orb, touching every zone, in a few short weeks.

In the early part of the century the postal system was conducted solely for the purpose of revenue, and it was not even considered a public convenience. Letters were taxed according to their weight and the distance they travelled, It cost one shilling and four pence to send a letter from London to Dublin, and if it weighed more than half an ounce it cost more. This system not only put a restriction on business, but did much to further localize the people. It was too expensive to even fall in love out of one's own parish, if the courtship had to be conducted by letter. To avoid the burden of this system there were many agencies for "smuggling" letters through the kingdom. When Rowland Hill in 1838 argued that a cheap rate would pay the expense of carriage and management, and that the increase of letters written would make a handsome revenue, he was called a dreamer and fanatic, but in 1840 the proposal of a penny postage, with the use of postage stamps, was adopted. Soon the number of letters transmitted had increased tenfold, and, what was better, the example gradually followed by every civilized state. The freer intercourse which followed the postal reform greatly facilitated commerce and emigration, and helped in no small degree to foster the growing spirit of international brotherhood. In these closing years we have seen the adoption of the Imperial penny postage, and the agitation which augurs the nationalization of telegraphs and telephones.

One of the necessities of every household a hundred years ago was a box of tinder with a piece of flint and a piece of steel. By striking a spark from the flint with the piece of steel, and letting it fall into the tinder box, they could blow it into a flame. Thus our forefathers kindled their fires. Perhaps the difficulty of producing fire will explain why it enters so largely into primitive religions as an object of worship. But when the lucifer match was invented in 1832 it brought one of the greatest material comforts ever given to the human family.

The poor needle-woman two generations ago labored for as many hours as she was able to keep awake, receiving sometimes less than six pence for her day's toil. When an American mechanic invented a machine that could sew as much as six needle-women, in the same time, the invention was promptly appreciated. The demand for sewing-machines increased with unexpected rapidity. Soon "the starving needle-woman ceased to be one of the scandals of civilization," and in her place came the happy, healthy, and prosperous "machine girl."

The battle of Waterloo was fought with flint-lock muskets loaded at the muzzle, the smooth bore of which made the aim uncertain, and the effective range of which was only two hundred yards. No wonder only one in six hundred bullets struck a Frenchman. The Boers, with Mauser rifles that will shoot accurately and kill at two miles, and their artillery shells fired from a range of five miles, have taught civilized nations to avoid, if possible, the arbitrament of war.

Electricity, which in the beginning of the century, was a mere plaything of the schools, was first made practical by Morse in 1855, when he completed his invention for sending messages over wires charged with this mysterious power. To trace the development of invention on this line is a story more interesting and marvellous than the tales of the "Arabian Nights." When we recall that a hundred years ago people lighted their homes with a candle "dip," and the streets of London had only occasional flickering lamps burning whale-oil, and compare it with the modern use of electric light, we are lead to exclaim, What great spaces we have crossed! When we think of the tortures of the ancient coach-horse, and compare our comforts sitting in an electric trolley, we say, Surely some magicians have been at work in our age! As telephones, phonographs, biographs, and a thousand other marvels have followed in continuous succession of invention, we ask, When will its resources be exhausted?

A hundred years ago farmers knew nothing of the use of manures in the land. The advantage of draining was unknown. Even in cities the streets were mere cess-pools. Contagious diseases accounted for more than half of the deaths. Medical science, too, was very crude. It is admitted that George Washington probably died from the bleeding given him by his physicians. Anæsthetics were as yet undiscovered, so surgery was the bane rather than the glory of the medical profession. Amputation was resorted to in almost every disease of the limbs. On the streets of the cities specimens of dismembered humanity were painfully frequent. The insane were still treated as persons possessed of the devil.