

Scientific American.

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The SCIENTIFIC AMERICAN Office has removed from its old location, 128 Fulton st. (Sun Building), to No. 37 Park Row (Park Building), where all letters, packages, and models should hereafter be addressed.

The Season.

"Spring is coming," says the song, "laden with flowers."

A mild winter has passed away, Earth's white mantle has disappeared, and the world puts on her vernal vestment of many-colored leaves and flowers.

The plow slides quickly through the willing land, waking up many a life that has been dormant since the Fall, and the plowman whistles merrily as he controls the forming of the furrow.

The seed-planter clicks cheerily, as it deposits the germs of food and gladness in the bosom of the great Mother, and all nature seems gay, lively, and joyous.

The mists of morning and of evening give additional beauty to the rising and setting of the sun; the poet looks to the woods and fields for tropes; and the artist, forsaking albums, cities, and scrap-books, goes to drink in the forms of the beautiful from Nature's own pure fount.

Welcome, welcome, gentle spring!

But what shall he do who is neither artist, poet, nor laborer; who is only a simple searcher after truth? Or how shall they find rational recreation at this opening of the year?

Go study the great book—the Book of Nature, which is open everywhere for all to read and contemplate, offering pleasurable discoveries to the student, full of grand meaning and suggestive of that Father who not only controls his planet-children in their course, but cares for the falling of a sparrow and the up-springing of a blade of grass. Why, the very winds rustle its pages to make music for the scholar, and the bright sun replaces the midnight lamp.

Now is the time to understand the harmonies of created life, while the plant and the animal are, as it were, in embryo and young together.

The wonders of insect life become unfolded to the view, the small worm-like case is broken by the genial noonday warmth, and out flies the beautiful butterfly with his gaudy wings that light has painted. The fishes are seen disporting themselves in the clear brooks, and the birds sing merrily among the trees; the grass is soft and velvety, and its green is now the freshest; the sky is clear, the moon is bright, and the stars twinkle roguishly as if partaking of the joy of man.

Now is the time to study botany and the physiology of plants; their circulatory system, while the stems are tender; their respiratory, while the leaves are young.

Mineralogy and geology are best learned now, for the melting snows have washed the mountains and laid bare the strata, and fresh supplies of minerals are ready for examination.

In short, now is the time to commence the study of an out-door science with little help from class-books, and learning may be made a recreation.

Who will try and thus amuse themselves? Many, we hope.

Everywhere, all around us, are now fresh forms of life and things inanimate, each carrying their load of interesting facts to which a man may help himself, and leave them none the poorer, while they give to the possessor a store of riches that no panic can deprive him of.

Would you be truly rich, gentle reader? then be a student of out-door sights, sounds, and life, this spring of Eighteen-hundred and Fifty-nine.

Social Progress of Workmen.

There have been several recent strikes at Stafford and Northampton (England) among the cordwainers, against the introduction of sewing machines in the manufacture of boots and shoes. On this subject the London Engineer contains an able and enlightened editorial. It says: "To what school must workmen have gone not yet to have learned that of all the hopeless contests in which men can engage, that against the introduction of machinery is the maddest and the most bootless. The most they can do is to drive the manufacture to new fields and ruin the trade of their own districts. Doubtless they will suffer inconveniences and hardships by the change of machinery, but resistance to its introduction will only aggravate the evil. Mechanical science is destined to revolutionize all our old modes of industry, in order that she may eventually put them on a broader and more stable footing. After the struggle and jostling and discomfort of the new arrangement is over, then will come the solid advantage with which the change is fraught. Increased labor and higher remuneration have always followed in the wake of changes of this kind."

These remarks on the useful and beneficial effects of the application of machinery to new purposes, to supersede hand labor, are true and well expressed. The whole history of machinery is a living testimony to the elevating tendency which it has exercised upon the condition of mankind, and to none more than those who have blindly rebelled against its introduction. When we look into the philosophy of this question, we cannot but conclude that it is impossible for labor-saving machinery to produce other than beneficial effects upon all classes and communities, and we are surprised at the want of intelligence and English common-sense displayed by these rebellious shoemakers of Stafford and Northampton, in their efforts to turn back the wheel of Fate in the application of sewing machines to their trade. These men will find that such machines cannot be resisted; their course is onward, for they are apostles of civilization, under a wise and good Providence, for ushering in brighter days to the toil-worn and drudging hand-laborer.

In the same article, the Engineer asserts that one great cause of the degraded habits prevailing among so many workmen in England—such as resorting to the ale-house and places of very questionable public amusement—is the want of comfortable and cheerful firesides. Their houses are miserable in every respect. "Mr. Justice Baylis," says our cotemporary, "at the last Hampshire assizes, referred the long and hideous list of crimes to the want of accommodation in the cottages of the laboring population, an opinion that found many to sympathize with it. Years ago, that inspired peasant—John Bethune—spent his winter evenings in composing and delivering lectures on cottage economy, so deeply did he then realize the need of a radical change in the home management and life of the peasantry of Scotland. Yet to defects in these very things we have the crime and misery that disfigure our agricultural districts. Though varied in their mode of development, the same causes are at work elsewhere and similar ameliorations are called for."

These are the remarks of a true political economist, and though intended for the laboring classes of Great Britain, they are as applicable to those of our own country. The calendar of crime in New York and other cities reveals the fact that the great mass of intemperate persons and criminals are those who live in crowded and pent-up dwellings, which are destitute of ventilation, accommodation, and means of cleanliness. As intemperance, and its consequent attendant crimes, necessitate the raising of the greatest share of our taxes, by requiring a large police force, numerous prisons, courts of judiciary, hospitals, &c., it would be a truly wise political

economy were our wealthy property-holders to take up this subject in an enlightened manner, and endeavor to provide comfortable and attractive houses, at moderate rents, for the laboring classes. By doing so they would reduce the amount of crime and immorality practiced, and thereby reduce their own taxes. This is a question of social science which deserves more attention than it has yet received by all classes of the community.

Inventors' Honors—Strange Case.

It is pretty well known in scientific circles that William Armstrong, of Newcastle, England, has recently been made a knight by her Majesty, Queen Victoria. It is also well known that this honor has been conferred upon him for his invention of a breech-loading rifled cannon, by which iron conical bullets, coated with lead, were fired through the sides of an iron floating battery as easily as if they had been made of glass. This invention is supposed to have given to England vastly increased powers of destroying enemies' shipping, demolishing their fortifications, and blowing up their cities; hence it was a perfectly just duty of the Sovereign to confer great honor for such artillery improvements. There is one person, however, who now comes forward and advances claims to the same invention, dating these forty years ahead of those of the new-created knight. This person is J. C. Daniel, of Bath, England. In a late communication to the London Mechanics Magazine, he states that the Armstrong gun and shot are, in all the most essential points, complete copies of his gun and shot, which have been in the hands of the British government for upwards of 40 years. About 45 years ago he invented a breech-loading rifled cannon (also small arms), and by direction of the government authorities, these were sent to Woolwich, where they have remained in "durance vile" ever since. Mr. Daniel had also a second six-pounder gun cast, which remained at his own house till 1851, when he took it up to the Great Exhibition, and afterwards brought it under the notice of the Duke of Wellington and Lord Raglan, when the latter advised him to have it examined by a Board of Officers at Woolwich. This was accordingly done and the principles of the gun approved of, but the Board declined to recommend government to have a larger one made, although the inventor offered to pay the whole cost if it should fail. The construction of this rifled cannon at the breech appears to be similar to Sharp's rifle. The chamber is a little larger than the general bore of the gun, and the iron balls are cased with lead, so that they do not cut the iron; the breech which closes the charge chamber is a cast-steel gate, worked by a lever. From the letter of Mr. Daniel, we deduce that he invented a most effective breech-loading rifled cannon over 40 years ago, put the British government in possession of it, and again brought it to the notice of the Woolwich authorities in 1851. Here, then, was a most efficient old cannon, which could have been used in the Crimean war with destructive effect, suffered to lie in idleness and obscurity until the Queen of England confers knighthood for the invention, in 1859, upon a very different person from the original inventor. In all likelihood Mr. Armstrong has had more influence than Mr. Daniel, and knew how to use it with the government officials. We advise Queen Victoria to knight Mr. Daniel also: he has a joint right to such an honor, and likewise a share of the \$100,000 which have been awarded to Sir William Armstrong.

The Frigate Niagara.

This noble ship of war is now in the dry dock of the Navy Yard at Brooklyn, where her bottom has been inspected and found somewhat seriously injured, a considerable portion of the false and main keels having been carried away. Her boilers and engines have been overhauled and renovated, and she will soon be turned out again as good as new.

Railroad Cars—Dead Weight.

There are twenty-eight thousand miles of American railroads now in operation, in which there is invested no less than \$1,050,000,000. These modern avenues of commerce have been of incalculable benefit to our country. They have brought distant cities into close proximity, facilitated the means of communication, and have wonderfully developed our national resources; and yet they have proven very disastrous to the interests of those who furnished the means to build and equip them. Hundreds of persons have been ruined by the miserable results of their investments; while on the entire capital sunk, not more than two per cent interest is paid annually. There are a few lines which pay respectable dividends; but taking the mass of them, no property is more unprofitable or held in greater disrepute. The great expense daily incurred in working our railroads is the fatal hindrance to their prosperity. On account of the defective construction of the track, and the vast amount of wear and tear in engines, cars, &c., thereby involved, it has hitherto taken nearly all the income to pay the current expenses. It is generally admitted that, with good management, no property should pay better than railroads, but how such a result can be brought about is the important question. We would direct attention to one of many points where an apparent improvement can be effected—we mean the cars. A pamphlet, just published in this city, advocates the use of the "La Mothe Iron Car" as one means of decreasing the current expenses of railroads. It is constructed in a peculiar manner of thin plate iron, and is stronger and much lighter than common cars. Now, as it is stated that each common wooden car is about two tons heavier than it ought to be, it follows that a locomotive drawing twenty cars has a dead weight of forty tons imposed upon it, which weight brings in no pay but causes considerable outlay. If cars can be made equally strong and comfortable, and two tons lighter than the common kind, they will certainly effect a great saving in railroad expenses if adopted. At any rate, the subject of drawing a useless load in cars on railroads is one to which more attention should be directed, independent of the La Mothe or any other particular car. Some years ago, Mr. D. C. McCallum, while Superintendent of the New York and Erie Railroad, directed attention to this very point in one of his reports; but, practically, his suggestions have not been acted upon since, so far as we are aware. We believe the present is a very favorable period for presenting the subject again, and we hope it will not be overlooked or neglected by those interested in the question.

A full size sixty-passenger iron car, of the construction alluded to, is now being constructed at Paterson, N. J., and it is stated that, while it is stronger than a wooden car, it only weighs 9,000 lbs. This is from three to ten thousand pounds less than wooden cars of the same capacity—a very great difference indeed. It is expected to be completed in a few weeks, and several of the railroads diverging from Boston have combined to give it a fair trial, by running it on each of the roads in succession under various conditions. The importance of the results which may be achieved by the substitution of iron for wood in railroad cars is worthy of great consideration.

COMMISSIONER OF PATENTS.—Up to the time of going to press no appointment had been made of Mr. Holt's successor to the office of Commissioner of Patents. There are a number of candidates, and we hope to be able to announce the successful one in our next issue.

ANOTHER TRIAL.—The blow-off for boilers invented by J. H. Washington, of Baltimore, and illustrated on page 252 of the present volume of the SCIENTIFIC AMERICAN, is being tried in the boilers of the steamship *Vanderbilt*.