

## Scientific American.

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**The Great Celebration and the Atlantic Telegraph.**

Our whole country, from its circumference to the center, has been electrified by the successful laying of the Atlantic Telegraph—that instantaneous highway of thought between the Old and New Worlds. It was an enterprise in regard to which all men wished for success and certainty. Great honor is due to those who devised and organized the project, and conducted its operations. The indomitable perseverance which they exhibited under so many difficulties and embarrassments of an adverse character, and their final triumph over all these, deserve the highest praise. The names of the most prominent of these parties—Field, Morse, Everett, Bright, Hudson, and others—have been held up before our people with marked respect. But perhaps the grandest feature in the whole affair was the spectacle of the two greatest nautical and Christian nations in the world employing their resources, and noblest vessels of war, in carrying out this gigantic scientific and commercial undertaking. We hope it may be an augury that war shall hereafter be unknown between them, and that in future their rivalry shall be “mutual co-operation to advance arts, commerce, and science.”

Wednesday of last week was set apart as a day of public rejoicing in New York for the success attained in laying the cable, and we never witnessed on any previous occasion such a grand and universal demonstration. All classes, orders and societies turned out in procession to offer testimony to the feelings generally entertained towards those who were engaged in the accomplishment of the triumphant event. The officers of the frigate *Niagara* and those of the British war steamer *Gorgon* were received in style by the city authorities.

*Te Deum* was executed in Trinity Church in honor of the occasion. Titled lords, prelates and priests graced the spectacle. Magistrates from distant cities, and soldiers from Canada took part in the services. The crowning arch in the grand cavalcade, however, was the appearance of the industrial trades. Printers, coopers, millers, carpenters, machinists were there each exhibiting their varied arts as the columns moved onward towards the Crystal Palace, where, in the presence of ten thousand people, David Dudley Field, Esq., pronounced an oration. It was a most happy sight to see that venerable inventor, preacher and scholar, Dr. Nott, enjoying peaceful communication with his Grace the Archbishop Hughes, thus exhibiting a most agreeable illustration of the spirit of “peace on earth and good will among men,” such as is the promise of good things to come.

In the evening, there was a brilliant illumination and a gorgeous torchlight procession by the firemen, and, on the whole, no such display has been witnessed here since the first Hollander set his foot on Manhattan Island. The circumstances undoubtedly warranted some such exhibition of public feeling, although its keen relish was somewhat blunted in the estimation of many good men when they remembered the fact that it was got up and managed by a mess of swindling officials, who will in some manner make the taxpayers smart for the cotton, paint, liquor and cigars supplied on the occasion at their expense. We can somehow overlook the heartless part of the exhibition, when we consider this ovation as an acknowledgement due to that power of science which has enabled man to hold converse with his fellow man through the depths of the great sea, through that path spoken of by Job, “which no fowl knoweth, and which the vulture's eye hath not seen; the lion's whelps have not trodden it, nor the fierce lion passed by it.”

In regard to the operations of the enterprise, many superficial and incorrect statements have been put forth by various publications. No new invention of any great consequence was involved in laying the cable. Submarine cables had been laid before, but they were on a much smaller scale. The achievement derives its importance from its greatness, as being the most gigantic effort ever made to extend telegraphic communications between distant continents. Whether the Atlantic Cable will ever realize all that has been expected from it by sanguine persons remains to be demonstrated—thus far it has not. Its operations have, as yet, been of a very puzzling and tedious character. On page 184, Vol. XII., SCIENTIFIC AMERICAN, the nature of the submarine cable as an electrical conductor was explained. It was there stated to be a vast Leyden jar, and messages could not but travel very slow in it—requiring about six seconds for each signal, and therefore incapable of transmitting more than about half a column of news in twenty-four hours. As yet it has not come up to this figure; and it has baffled all efforts to work successfully any of our common telegraphic instruments. The messages sent have been by slow “time signals,” and many very incorrect and contradictory statements have been put forth by those interested, which are calculated to mislead the public. Thus in the published statement of G. Seward, manager of the line in England, he asserts that the Queen's message to the President, consisting of ninety-nine words, was received in Newfoundland in sixty-seven seconds; whereas we know, by the published statement of M. de Santy, manager at Newfoundland, it took about twenty-four hours. All the messages—and they are but few in number—which have been sent, have required a very long time in their transmission. With the very best known instruments messages will be very slow, and unless some new discovery is made to remove existing obstacles, the Atlantic Telegraph will be of very little general benefit to the commercial people of the two continents. It will undoubtedly be a great national benefit for special purposes, but that will not meet the wants of the public. The instruments for operating the cable ought to have been adjusted and in working order long ago. That this has not been done affords reasonable grounds for concluding that greater difficulties have been experienced than were expected.

**Relation of Masters and Apprentices.**

We have often thought that if masters properly comprehended the relation they sustain to their apprentices and employees, their pecuniary interest would not only be greatly enhanced, but that a positive good would be rendered to every branch of industry in which they are engaged, as well through a more harmonious concert of action as a superior social elevation given to the worthy class under them. To our view, this relation is somewhat analogous to that existing between parents and children, so far as the development of their minds and the instilment of sound principles of morality and industry, the encouragement of skill in manipulation, and the attainment of knowledge are concerned. We believe the observation of a celebrated master, that no one is born without capacity for some branch of industry, is a just one, and that where stupidity exists it is nothing else but neglect of proper discipline and education in the youth of the person thus unfortunately deficient. To establish this fact it needs no fresh arguments of ours to show how extremely ductile, how capable of government and restraint, and how susceptible of instruction human nature is, when approached in the proper spirit of kindness, dignity and respect, which stimulates zeal and ambition, and produces a corresponding return.

The first duty of a master should be to present in himself an example for imitation in the elements of industry, morality, system, and the other attributes which constitute a

superior mechanic or workman. There are many apprentices who have so much of the spirit of self-reliance and genius that this example is not essentially necessary; but if we pursue the reflection, and for the certainty of the rule consider (what no man can fail to observe) the effect the characters of others of a superior rank have upon those immediately connected with them, it will be obvious to all that the master, in a great measure, impresses the inferior with the prominent traits of his character. They should, moreover, observe and study the dispositions and minds of their apprentices, with a view of conciliating their regard and confidence, and through this means to establish a free and familiar intercourse, and render the task of instruction and development more simple and easy. As the apprentices advance in knowledge and skill, suitable evidences of appreciation and encouragement should be given them. This will stimulate their ambition and exertion, and create among them a worthy spirit of emulation.

Where the character of an apprentice is such as to require a tight rein upon his actions, and the deprivation of privileges, and other suitable punishments for idleness and misconduct, care should be observed that these curbs and punishments do not descend into such acts of tyranny as will destroy the spirit and ambition of the youth, and render him obstinate, unruly, and beyond all future influences of excellence and good. Besides a thorough instruction in his trade or profession, and a sound and healthy education to otherwise render him fit for his social position in life, it should be the aim of a master to instil into his pupil all the scientific and other knowledge possible, even should such knowledge have no direct bearing upon the business or trade in which he is engaged. Such acts of interest, kindness, and confidence as these, and others of a corresponding character, cannot fail to produce the most marked beneficial results upon the interests of the master, and the happiness and condition of the grateful apprentice.

**The Yellow Fever.**

Some time ago we remonstrated strongly against the course of Dr. Thompson and the Board of Health of this city, for the careless manner in which infected ships were treated by them, and this journal was the first to call the public attention to their official stupidity in allowing the U. S. ship *Susquehanna* to remain for three months in the cool weather, without attempting to do anything for her restoration to usefulness, and then when the thermometer got to “fever heat,” they busily stirred themselves to get her disinfected, by risking the lives of stevedores and others, in a reckless and unnecessary manner. Since that time, many other infected ships have been treated in the same way, and at this moment there are too many opposite the Quarantine station, which is only six miles from the city. The consequence of this careless conduct is that yellow fever has broken out in three distinct parts of Staten Island.

Since writing the above, the whole of the Quarantine buildings have been burned to the ground by a mob, and the sick left uncared for. The doctors deserve the credit of having stuck to their posts like brave men during the whole of the conflagration. We hope that the perpetrators of the wrong may be apprehended and punished, for it is no way to redress one evil to allow a ruffianly gang to take the law into their own hands.

**RECOVERY OF ELECTRIC CABLES.**—The two electric cables which Mr. Brett endeavored in vain, about two years ago, to lay down between Spartiventi, Borea and Gallita, have, according to *Galignani's Messenger*, been discovered, and taken on board an English steamer, which arrived at Elba a few weeks ago. From a casual observation, it appeared to be but slightly affected by abrasion and other causes to which it was subjected during its long residence in the mystic deep.

**The Progress of Invention.**

It is with pleasure that we commence this new volume with such a fine list of patents, issued during the past week; and we can congratulate the inventors of the country that gradually their noble mission is becoming appreciated, as is evidenced by the tribute now so generally bestowed upon those men of genius who have been engaged in laying the Ocean Cable. Perhaps no better evidence of the increasing interest felt in invention and the growing genius of our country can be found in the records of the Patent Office. We can state two facts which will show the rapid progress that has been made. During the year encompassed by Vol. XII of the SCIENTIFIC AMERICAN, 426 patents were issued to persons who had made their applications through our Agency, while in the year just closed, embraced within Vol. XIII, 888 patents were issued to our clients!

Making a selection from the List of Claims published in this first number of Vol. XIV., we find AGRICULTURE well represented, and we will proceed to give some idea of the new inventions in this class. In fact, the cultivation of the earth, and the production of machines which facilitate the tilling of the soil, and the gathering of its fruits, are the subjects which, more than any other, engage the inventor's attention.

John D. Tifts, of Cuyahoga Falls, Ohio, has invented an improvement in separators or winnowers. It consists in having the discharge orifice of the fan case provided with a segment shell, by which the size of the orifice may be regulated as occasion may require, and using in connection with the slide an adjustable blast director, so that the device is well adapted to winnow large or small grain.

L. H. Parson and G. Houston, of Middletown, N. Y., have invented an improvement in the wire-toothed horse rake. They employ supplemental springs, arranged and connected with the teeth, so that while the teeth are properly braced and stayed, they have at the same time the requisite degree of elasticity.

Next comes an improved clearing device, to be applied to seed drills, invented by O. H. S. Brumfield, of Centerville, Ind. The invention consists in having a series of hooks or curved teeth attached to a rod, the ends of which are fitted in horizontal guides, and connected to pitmen, which are attached to cranks, these parts being so arranged as to clear all weeds and other obstructions from the ground in advance of the drill, and thus prevent its clogging.

Messrs. Conklin & Newton, of Stirling, Ill., have produced a novel seed-distributing device, especially applicable to broadcast seed planters.

J. B. McCormick, of Versailles, Ky., and W. R. Baker, of Boston, Mass., have invented an improvement in seeding machines, which relates to a novel means employed for forming the drills or furrows, and dropping the seed into the ground.

The next invention, that of E. L. Lyon, of East Randolph, N. Y., relates to an improvement in that class of seeding machines in which the seed-distributing devices are attached to the wheels, and are operated by the rotation of the wheels as the machine is drawn along. The invention consists in the peculiar construction and arrangement of the distributing devices as applied to the wheels, so that seed may be planted evenly either in check rows or in parallel drills.

Joseph D. Smith, of Lancaster, Ohio, has also invented a machine for planting maize, or corn, and other seed, in check rows. The invention consists in a peculiar seed-distributing device, and also in a novel device for forming the necessary furrows to receive the seed also in a peculiar arrangement of the framing, whereby the device is allowed to conform to the inequalities of the ground, and the seed-distributing portion elevated free from the ground, when desired, or when mov-