

Scientific American.

NEW YORK, AUGUST 14, 1858.

Our Anniversary.

Charles Mackay, during his late visit to the United States, discovered, among the many other wonderful things to be found here, that we possess a catalogue of "institutions" more numerous than he had met with among any other people. This term in former days could only signify some august establishment, either civil, political, or eleemosynary, but now it dignifies many an object of every day concern, and can as well apply to a match factory as to a Cambridge or Oxford university. Now, we modestly claim that the SCIENTIFIC AMERICAN is one of the recognized "institutions" of which the United States is said to be so prolific; why, therefore, should it not have its anniversary—its holiday?

Let patriots, great and small, prate loudly about independence—let orators talk about our great institutions, and say fine things of our great national bird—we have no word of opposition to say against these and kindred demonstrations. Our object now is simply to announce to the busy, thinking, earnest citizens of the great republic, from Aroostook, Maine, to San Diego, California, that in the diurnal revolution of the earth the SCIENTIFIC AMERICAN is just about to slip out of its thirteenth year, and will enter upon its fourteenth volume on the 11th of September next, which is close upon our heels. The past year has been an eventful one—the financial and the business centres have been convulsed, and a heavy cloud of disappointment fell upon many bright hopes and cherished plans. The shock came upon us at an inopportune moment, just as we were about to enter upon a new volume, when more than six thousand book subscriptions were about to expire; and although we felt the effect of a diminished subscription list, yet our old and well-trying friends came forward, and did nobly towards extending the circulation of their favorite paper.

To one and all of our readers we tender our sincerest thanks, and we also appeal to them to not only promptly renew their own, but also to gather up additional subscriptions for the new volume. Shall we make this appeal to them in vain? We believe not; and if all our subscribers will turn out among their neighbors, and induce some of them to subscribe, instead of twenty-five thousand, we shall have a subscription list of at least fifty thousand.

We make this appeal the more urgently because, after careful consideration, we have determined not to continue the system of paying prizes, nor to begin the employment of traveling agents. We prefer to throw our cause upon those generous friends who have so long sustained the SCIENTIFIC AMERICAN, and we believe that we shall not be disappointed, after a continued success of thirteen years. We invite especial attention to the prospectus of the new volume, published in another column, and conclude by stating that it will be our endeavor to make the SCIENTIFIC AMERICAN still more useful and interesting than it has hitherto been.

To Contemporary Editors.

We should be ungrateful not to acknowledge our great indebtedness to the editorial corps generally, for the many generous notices which have been given to the SCIENTIFIC AMERICAN since its commencement, and we hope it may continue to merit and receive their approbation. We have endeavored to keep to our original purpose, viz., to devote our time and talents to the development of the great industrial pursuits of the nation, and we shall in the new volume, as heretofore, remain firm to this purpose, eschewing political and religious controversies as subjects wholly foreign to our sphere of labor. We shall endeavor to render the SCIENTIFIC AMERICAN still worthy of the good opinion of our editorial brethren in all parts of the Union.

The Atlantic Cable Laid!

All hail to Anglo-Saxon genius! and two nations' heartfelt thanks to the noble, aye, and mighty, men of science, capital, and energy, whose untiring zeal and indomitable perseverance have linked the hemispheres with the electric cord! The cable, that has been the subject of so many hopes and fears, the enterprise that has received so much commendation and discouragement, now ceases to agitate with differing storms the public mind; and all, with one accord, and with harmonious voice, in joy and gratitude, feel glad that, reposing on old Ocean's bed, it has become a bond of peace between the nations, and that success has at last crowned the united efforts of America and England to bring about a triumph of science unequalled in the history of the age. On the afternoon of the 5th our land was electrified with the glorious intelligence; and smiles, congratulations, and warm expressions of good will, were heard and seen on every side. At Andover Theological College about one thousand persons were partaking of the Alumni's semi-centennial dinner, when the news was announced; then followed enthusiastic applause, and from that crowd of men of genius, learning and position, there burst forth, to the solemn tones of the "Old Hundred,"

"Praise God, from whom all blessings flow."

The right reception for such glorious news! Hearts were too full to speak, and many a silent sigh of thankfulness ascended to Him who had given the genius, and sustained by daily help, the men whose toil and energy have secured this grand result.

Originated at a time when all seemed prosperous and fair, then carried on through a season of such commercial depression as, we are thankful to say, is seldom seen; when cavillers and objectors on every hand—from the press and forum—all alike spoke discouragingly of the enterprise; yet after three failures, through all these difficulties, these noble men have toiled and thought, devised and carried out, and at last, when least expected, their perseverance is rewarded, and the world agreeably disappointed, by success! Only three weeks ago we announced the failure number three, but we did not groan and lament; we knew that the credit of men of science was at stake, the reputation of two navies was concerned; they had to effect a victory greater than ever was obtained in any battle, and our motto was in Gerald Massey's simple words—

"Hope on, hope ever."

Words almost lose their power, and fancy becomes weak, when we imagine the great results that will follow in the wake of this great event—Christianity and liberty both made more secure, new avenues of commerce opened, and no time given for rankling feelings to possess the minds of either people towards each other, for difficulties will be explained in a few hours; and in this regard, Cyrus W. Field, Professor Morse, and all connected with the enterprise, are great pacificators, great civilizers, and ever after shall be enrolled among the world's great men. We have not the inclination now to expatiate on the triumphs of science over natural difficulties, but we cannot help confessing that we are struck with wonder and an honest pride, when we reflect that British and American science, skill, and application have made three thousand miles of no importance, and have conquered Space and mastered Time.

The Economy of Nature.

In the great universe, to whatever part of it we turn, one controlling principle is ever apparent, one sentiment seems to pervade the whole—economy; and so forcibly does this strike the attention of every one of us, that we have expressed it in a proverb and use it as a motto, "Waste not, want not." The flowers are ever ready to receive the dew-drops, and when they have done with them, the morning sun evaporates and keeps them in the clouds ready for use again. Matter is indestructible, and although we can by fire and other means render it invisible, what is

our surprise to find that it has assumed a gaseous form, and the piece of charcoal that we burned is now floating in the room mixed with the atmosphere we are breathing. Matter is ever changing. The forces of nature which we call chemical action, gravity, electricity, light, heat, and life are unceasingly effecting the transmutation of substances; thus, for example, ages long since rolled away, myriads of little creatures with shells not larger than a pin's head, acted as the scavengers of the ocean, they died, and sunk to the bottom of the deep, and to-day we find their shells as chalk and limestone all over the world, and naturalists tell us that on the sea bottom of the Gulf of Mexico, and in various parts of the Gulf Stream, there are limestone beds being formed by the modern representatives of ancient *Foraminifera*.

The lovely tints that deck the leaves in the Fall, and give to our autumnal scenery such a distinctive beauty, is due to some bed of iron ore, which has lain hidden beneath the rocks for centuries. Some little brook first found it out, and carrying it away bit by bit has spread it over the soil, gradually the iron ore crumbles, and the winds disperse it, the trees feed upon it, and in the autumn it shows that it is there, by the color of the leaves. When trees shall have decayed, and what is now dry land shall have been depressed and upheaved, covered by the sea and scorched by the sun, who knows but that that same iron may form a nodule or ball in a bed of coal, and be worked and smelted for the use of man. All these changes work together harmoniously. All goes on in exact proportions. No waste, no want!

"What is one man's meat is another's poison" is another maxim which the economy of nature teaches, and one simple illustration will quickly make it plain. The solid portion of living things, if we except the skeleton, is carbon—charcoal. This all animals must have in their food, and from the food the digestive organs take as much as is necessary to make muscle, flesh and tissue, throwing the rest away from the lungs as an invisible gas, poisonous and deadly. When we for a moment think of the number of beings who are every moment breathing into the common atmosphere such vast quantities of this gas, and have been doing it for centuries, we ask, "How is it, then, that we can live?" In the quiet and still night when men and animals sleep, the plants are greedily and eagerly absorbing all this carbonic acid, and with care taking every particle of carbon for their own nourishment, they throw off as useless that which is most necessary to the support of animal life—oxygen. So the proverb is illustrated, for what is the poison of the animal is the food of the plant.

In this way, lessons may be learned by studying the workings of the natural forces, and by imitating the economy of nature, we shall ever be healthy, happy and content.

Unhealthy Positions of the Body.

Those persons engaged in occupations requiring the hands alone to move, while the lower limbs remain motionless, should bear in mind that without constantly raising the frame to an erect position, and giving a slight exercise to all parts of the body, such a practice will tend to destroy their health. They should, moreover, sit in as erect a position as possible. With seamstresses there is always more or less stooping of the head and shoulders, tending to retard circulation, respiration, and digestion, and produce curvature of the spine. The head should be thrown back, to give the lungs full play. The frequent long-drawn breath of the seamstress evinces the cramping and confinement of the lungs. Health cannot be expected without free respiration. The life-giving element is in the atmosphere, and without it in proportionate abundance must disease intervene. Strength and robustness must come from exercise. Confined attitudes are in violation of correct theories of healthy physical development and the instincts of nature. Those accustomed to sit writing for hours, day after day, can form

some idea of the exhausting nature of the toilsome and ill-paid labor of the poor seamstress.

Durability of Pearls.

The city of Paris, like our own national capitol, contains a large number of literary charlatans, whose existence depends upon the marvelous stories they are able to serve up for the journals for which they correspond, and hence these Bohemians of the press do not hesitate to manufacture the most improbable *canards*, to give spice to their correspondence, and gratify the prevalent appetite for the extraordinary. Royalty appears to receive the special attention of these gentlemen, and the most trifling event of interest pertaining to the courts of Europe is embellished and magnified through their exuberant fancies in such a degree as to make it extremely palatable to those for whom they cater. In detailing the many discoveries and inventions in science and the mechanic arts for which the French people are noted, they often mar and render them ridiculous to those of their readers whose education enables them to detect the proclivities of their trade; but it is seldom that one of these correspondents entrenches so far upon acknowledged principles in science as to manufacture and start a story involving a scientific solution. One, however, has had the temerity to do so in the following:—

TROUBLE IN A JEWEL CASSET.—An alarm of a most serious nature was spread throughout the Tuileries on Monday. The Empress having expressed her intention of wearing the beautiful parure of pearls at the ball given in honor of the Queen of Holland, it was discovered on opening the *ecrin* which contains the necklace, that two of the precious gems were discolored, and sickening of that disease, the terror of jewelers and guardians of crown jewels, the cure for, or preventive of which have yet to be discovered. By this disease the pearls change color, then become scaly, and finally crumble to powder. The malady is contagious; and if the first pearl attacked be not removed, every one confined in the same *ecrin* will soon be lost. In the present case, the separation of four of the diseased pearls from the necklace was speedily resolved upon by Kramer, the court jeweler, as the only means of saving the rest.—*Paris letter*.

We need hardly inform our readers that the above statement, beyond the assertion of discoloration, although studiously clothed in the positive language and precision of truth, cannot, from the nature of pearls, have any foundation whatever in fact. The exact formation of pearls has given occasion to any number of theories, including the poetical hypothesis of Pliny, that they are the result of the dew of heaven, imbibed by the shell oyster, which, like a liquid pearl, insinuates itself into the body of the same, fixes by its salts, and there assumes the color, hardness, and form of pearl; and many others of an equally absurd and extravagant character. Sufficient, however, is known of pearls to know that they are calcareous, and are all liable to change with wearing, and that in many cases they become of little value in a hundred years, especially the white ones, which often turn yellow and spoil in fifty years' time. Pliny tells us that Cleopatra was able to gain a wager from her lover, by dissolving her pearls in vinegar; but it is clear that she must have employed stronger vinegar than that at present used, as the hardness and natural enamel of a sound pearl cannot be easily dissolved by a weak acid. The pearls of the Empress may, therefore, have become discolored from age, or the action of an acid, or like cause; but the story that this was occasioned by a contagious disease as asserted, is evidently the result of intellectual friction, in connection with a well-known fact, in the inventive brain of some Paris correspondent, domiciled in the street of the Four Winds of the *Quartier Latin*.

An engraving and description of Hock's gas apparatus is unavoidably postponed.