

Scientific American.

Birth-day of the Scientific American.

We greet our friends with gladness at this time, for it is our birthday anniversary. The SCIENTIFIC AMERICAN is twelve years old, and now begins its thirteenth year. This seems but a small period of time; but in its scientific achievements it equals, if it does not exceed the preceding half century.

Let us look back a little, and note a few of the prominent steps in progress and discovery which have been chronicled since our journal entered into existence.

The number of new inventions patented in this country during the past twelve years is about 15,500. The total number of patents issued during the preceding seventy-five years was 14,500. This is a deeply interesting fact, as it shows how ideas beget ideas—how one invention is the parent of another. It substantiates the oft-expressed opinion that mind has only just begun to exercise its control over matter, and leads to the irresistible conclusion that far more wonderful things are yet to be revealed by the workings of human ingenuity than any that have hitherto been produced.

The Electric Telegraph, as a practical invention, was only a year old when the SCIENTIFIC AMERICAN started in life. The first forty-four miles of telegraph had just been put in operation. There are now in operation and under construction throughout the world about eighty thousand miles.

Twelve years ago, the people of different continents were, in a great measure, isolated from each other. The pathless waters cut them off, as mankind then believed, from all communication, save by the slow and dangerous process of navigation. But now, on wings of lightning, defiant of wind or wave, messages of peace and good-will glide through the world. It is not probable that a submarine telegraph cable could have been successfully constructed twelve years ago, for it is only since then that the wonderful gum, Gutta Percha, has been made known and utilized. As an electrical insulator, gutta percha stands almost next to glass.

Twelve years ago, the artist's pencil, slow and distorted, was almost the only means known whereby natural objects were capable of being reproduced. But drawing lessons have been taught to the Sun, and now he gives us any picture we may desire, in an instant. Nor is he particular as to the substance upon which he paints the object; metal, glass, canvas, leather and wood, all are alike available to him.

In chemistry, what wonders have been developed within twelve years! Oil made from coal has become a common article of commerce. The fishes that inhabit the great deep no longer constitute the chief sources of our oleaginous products. The touchstone which actually converts base metals into gold and silver, has not, it is true, been discovered, but a new metal, wonderful and precious in its character, has been produced from common clay.

The shrieks of patients, writhing under the surgeon's knife, are now no longer heard. Somniferous chloroform soothes the nerves, and brings "deep sleep" upon its subjects. And thus we might proceed to a far greater length in the enumeration of the prominent discoveries of the past twelve years; but time and space forbid.

Great, however, as has been the progress during the period named, somehow, it does not seem to us that the past year has produced its proper share of important novelties. The Atlantic Telegraph Cable looms up as the most striking enterprise of the day. But at present we can only glory in the uncommon length of its wires. The year, however, has been more fruitful in new inventions, so far as number is concerned, than any preceding twelve months. Yet among these inventions do we find as many of a strikingly original character as might be expected? We think

not. It seems to us that inventors and thinking men have confined the workings of their genius too much to the alteration and adaptation of old things. Now while we would not ignore, or attempt to depreciate the value of these labors, and their results upon our industry, we would urge them to still higher attainments. In the year which is now opening before them, let each try, if possible, to originate something which shall be wholly new, not neglecting, of course, the apparently less important subjects. "Progress" is the watch-word.

Our readers will notice that the SCIENTIFIC AMERICAN is printed upon new type, and is improved in other respects. With the new year we have "turned over a new leaf." We have determined to make our paper as much more interesting and useful than ever as it is possible. For this purpose we invite assistance from all quarters. We shall be happy to receive communications for publication upon all subjects connected with science and art. We shall, of course, exercise proper discrimination, and reject whatever we deem unsuitable to instruct and interest our readers. Thankful for the kind favor with which our efforts in past years have been seconded, we invite the co-operation of our friends throughout the new year which we now inaugurate.

Contradictions and Curiosities in Science.

The curiosities and contradictions of science, while they go to show the "eternal fitness of things," also prove that we live in a world of paradoxes, and that existence itself is a whirl of contradictions. Who would suppose, for instance, that water—which everybody knows extinguishes fire—may become fuel to a flame, so that the "coming man" who is to "set the Hudson river on fire," may not be far off. With the assistance of water and fire, elements which have befriended the magicians of every age, contradictory wonders of a marvellous character may be exhibited, and even the hitherto secret art of handling red-hot iron and other metals, and of walking through a fiery furnace may be revealed.

If we take some mystical looking gray globules of potassium, and sprinkle thereupon water, that fluid will instantly appear to ignite; the potassium has so inordinate a desire for oxygen, on the principle of affinities or attraction, that the moment they come in contact, the oxygen is abstracted, and hydrogen—an inflammable gas—is set on fire.

Again, if we take a platina ladle and hold it over a furnace until it becomes of a bright red heat, and then project a jet of cold water into its bowl, we shall find that the water will remain quiescent, and give no sign of ebullition—not so much as a single "fizz;" but the moment the ladle begins to cool, the water will boil up and rapidly evaporate.

So, also, if a mass of metal, heated to whiteness, be plunged into a vessel of cold water, the surrounding fluid will remain comparatively tranquil as long as the glowing white heat endures; but the moment there is a sufficient fall in the temperature of the metal the water will boil briskly.

If water be poured upon an iron sieve, the wires of which are red hot, it will not run through; but on the sieve cooling, it will run through rapidly.

The above contradictory effects are easily accounted for. The repelling power of intense heat keeps the water from immediate contact with the heated metal, and the particles of water collectively retain their globular form; but when the metal vessel cools, the repulsive power diminishes, and the water coming into closer contact with the heated surface, its particles can no longer retain their globular form, and eventually expand into a state of vapor. This globular condition of the particles of water will account for many very important phenomena; perhaps it is best exhibited in the dew-drop; and so long as these globules retain their form, water will retain its fluid properties. An agglomeration of these globules will carry with them, under certain circumstances, so much force that it is hardly a contradiction to call water itself a solid.

The chemical action of certain poisons (the most powerful of all agents) upon the human frame has plunged the Faculty into a maze of paradoxes; indeed, there is actually a system of medicine (advancing in reputation) which is founded on the curious principle. A famous Saxon was the founder of it; and, curious enough, medical men (who are notorious for entertaining contrary notions, for "doctors will differ,") are still speculating among themselves whether he was a very great quack or a very great philosopher. It is not our purpose to attempt to decide this apparently complex question; but we can garner up from his experience some curious contradictions, which help us still further into the mysteries of chemical science. While engaged in translating an article upon "Bark," from Cullen's famous *Materia Medica*, he experimentally tasted some of this medicine, which had long been celebrated as a cure for the ague, and not long afterwards he began to experience agueish symptoms! This led him to the inference that medicines which give rise to the symptoms of a disease are those which will specifically cure it; and, curious as it may seem, several subsequent experiments have confirmed this theory. Jenner's discovery of vaccination for the small-pox—the method usually adopted in the treatment of frost-bitten limbs—the administration of stimulants and opiates to persons whose constitutions have become enervated, whose limbs totter, and whose minds have sunk into a state of low muttering delirium or raving madness from the effects of strong drink, are only a few of the examples which might be eliminated to show up the paradoxes that everywhere crowd upon us.

Thus we live in a world of apparent contradictions and curiosities; they abound in every department of science, and beset us even in the sanctuary of domestic life. The discoveries of science have explained and reconciled some of them; but many still baffle our most strenuous mental exertions, and remain involved in mystery.

The Commissioner of Patents and the Patent Office.

We understand that the President has decided upon a suitable person to fill the office of Commissioner of Patents; but up to the time of our going to press, the name of the appointee had not been made public. The office was tendered to Joseph Holt, Esq., of Kentucky, but he promptly declined it. Probably he was not tempted by the miserable salary of \$3,000 to give up a practice worth double that sum. The Middletown (Conn.) *Sentinel* intimates that the Hon. John C. Palmer, of Hartford, is most likely to be the appointee, and goes on to say that he would ably fill the office. This opinion is confirmed to us by parties in this city who are acquainted with Mr. Palmer. It is our impression, however, that he will not receive the appointment. At any rate, let us have a good man for the place, and we care not from whence he comes.

We announced last week that Mr. Rhodes, of Louisiana, had succeeded Dr. Breed as Examiner in the Chemical Department. It appears, now, that this was an error. Mr. Galpin, it seems, fills this place; and Dr. Thomas Antisell, of this city, succeeds the late Mr. Tyssouski in the same department. These Examiners are men of quality, and will no doubt do all they can to render their services acceptable to all.

We are not the advocates of hasty changes in the Patent Office; but we have long been convinced that the departments most in need of official substitutes have been least subject to mutations in management; and if it would not be considered impertinent, we should like to inquire whether there have been, or are likely to be, any changes in Classes X, XII and XIII, comprising Land Conveyance, Civil Engineering, Mills and Presses? Also, whether the Chief Examiner of those classes evinces an amount of liberality equal to that which persons doing business with those departments have a right to expect, and which they most

generally receive, to a greater or less extent, from other official heads? While denying all desire to unnecessarily cast the shadow of a doubt over the educational competency of the gentleman having charge of the above classes, a disinterested zeal to promote and protect the best interests of inventors prompts us to ask, is he perfectly adapted, in every sense of the word, to perform the important and responsible duties of the situation which he at present fills?

We make these inquiries at the suggestion of many inventors who, in confirmation of a long-existing impression of our own, have intimated to us, from time to time, that it is often pretty hard work to get evensome deserving case successfully through the doors of the divisions above alluded to. If there is a screw loose here, it needs to be looked after; and whoever succeeds to the vacant chair of Judge Mason will do a service to the inventive community and the public generally, by inquiring into this matter. Examiners in the Patent Office are public servants, and they are bound to show a liberal discrimination in their official acts. No man deficient in this spirit of liberality is qualified to fill a public station of this character, and none such should enjoy it. We invite the attention of the Secretary of the Interior to the consideration of this subject.

A Profitable Enterprise.

Many of our readers have made large sums of money in various ways by small investments; some by patenting a novel invention, and others, less ingenious, by purchasing rights and re-selling the same. We have a suggestion to make in regard to money-making, by which, aside from any personal interest, (which we admit is considerable,) we believe any person who will properly exert himself can make a very handsome sum, and one which need in no way interfere with his regular business. We have evidence that some of our friends have taken our previous hint, and are laboring to earn some of the liberal prizes which we offer to those sending us clubs of subscribers this fall; and it is such men as these who will be able next January to endorse our assertion, that sometimes a little industry is very liberally rewarded.

This is the first number of a new volume, and we trust many of our patrons and friends will show it to their neighbor and acquaintances, and ask them to subscribe even if they have no wish to get up a club and compete for a prize. It will be commendable in those who thus exert themselves to extend the circulation of the SCIENTIFIC AMERICAN; and we are sure that all who are induced to do so will, at the end of the volume, thank the person who solicited them to make the investment. But we would call special attention to the reward which is in store for such as make an effort to get large lists of subscribers. Just turn to the Prospectus on the last page of this paper, and then see what an inducement is offered for the fifteen largest lists of mail subscribers that may be sent to our office before the 1st of January next.

Reader, seize this opportunity to make a few hundred dollars; it is easily done. Send to our office for a Prospectus, and go to work.

Our New Dress.

The beautiful fonts of type upon which this number of the SCIENTIFIC AMERICAN is printed, are from the type foundry of Robert Lindsay, No. 128 Fulton street. It speaks for itself. The various mechanical engravings and devices which embellish this week's issue were designed by Forbes & Bond, and engraved by Richard Ten Eyck. The work of these excellent artists scarcely needs our commendation, as the columns of this journal for some years past give convincing proof in their favor.

The London *Christian Spectator* says:—"As a general rule, we believe American theological writers to be better versed in modern languages and more deeply read in ancient literature—in other words, better and abler scholars—than the majority of theological writers in this country."