

Scientific.

THE MOST IMPORTANT DISCOVERIES ACCIDENTAL.

Some of the most useful inventions owe their existence entirely to accident, such, for instance, as the accidental discovery that Plaster of Paris was a non-conductor of heat—a peculiarity to which our “fire proof safes” are entirely indebted for their usefulness and popularity. This discovery was first made in New York in 1820, by a mechanic who carried on various branches of smith-work in Eldridge Street. Having occasion to heat some water, he took a cast-iron vessel in which plaster of Paris had been used, and to which some had adhered, forming a crust or coating on the inside of the kettle from one-half to three-fourths of an inch in thickness; he poured in water, and put it over the fire, with a view of heating the water sufficiently for his purpose; to his great surprise, after remaining in for some time, he found that no change had been made in the temperature of the water; he blew the bellows, rendered the fire still hotter, and was still more surprised, after a long lapse of time, that the water would not become warm; he left the water on the fire and went on with his work. Returning after some hours, he found the water had only become a little tepid; on this he laid various combustible substances on the fire, but still no effect was produced. Being somewhat puzzled to account for so strange a state of things, he next day instituted a series of enquiries, the result of which was the invention of the celebrated “Salamander Safe,” for the privilege of manufacturing which, Mr. Wilder, of this city, pays the discoverer, S. C. Herring, \$25,000 per year. So much for having an accident in the family and properly taking advantage of it.—*New York Paper.*

The *Picayune* gives an account of a new telegraph fire alarm, invented by Mr. Titcomb, one of the operators in the New Orleans telegraph office, said to be far superior to the one now in successful operation in Boston. The *Picayune* says that “it is intended to establish two batteries at different points of the city, from which a series of wires would extend in all directions. These are attached, by simple apparatus to bells either now existing or to be erected for the purpose, and at sixty different points iron boxes are to be placed, enclosed in which is a species of clock work, to be set in motion by simply moving a small slide. This completes the connection, and instantaneously the alarm is given all over the city. The clock work, by a peculiar movement, not only gives the alarm, but strikes the ward and district in which the fire may be, and thus guides the fireman at once to his proper destination. The keys to these boxes are to be placed in the hands of the police during the day and the watchmen during the night. An electrical clock to be placed in some central portion of the city, say the Mayor's Office in the City Hall, is to be attached, which will strike the hours simultaneously all over the city. The same apparatus which works the fire alarm also answers for the clock. The whole expense of putting up the apparatus will not exceed thirteen thousand dollars, while the cost of attending and keeping it in repair will be a mere trifle. The Mayor has already seen it, and the Fire Committee of the two Boards of Aldermen are shortly to examine and report upon it.”

NEW METHOD OF FIXING PENCIL DRAWINGS.

A new method for fixing Pencil drawings has been adopted in Germany. The *Art Journal* says that, Colodium, which is procurable at any manufacturing chemist's, with four parts of sulphuric ether, forms a clear compound, which applied to paper, quickly evaporates, leaving on the surface a transparent film that protects the drawing, and through which it is perfectly distinct. The advantages of colodium for this purpose are, the perfect safety of the drawing against injury by touch or handling, and in the event of the surface becoming spotted, the stains may be removed by being wiped off with a clean damp rag. In washing the drawings in this manner there is no ground of apprehension, for the coating left by the mixture is impervious to water. This method does not prevent subsequent correction of the drawing.

USEFUL SCIENTIFIC DISCOVERY.

A pharmacien at Rome, Signor Pagliare, has recently succeeded in discovering a liquid

possessing so extraordinary a power of coagulating blood, that if to a large basin containing this fluid one drop of the styptic be added, complete solidification ensues, so that the basin may be inverted without causing any blood to be lost. The practical advantages of this styptic are consequently very great, inasmuch as, by its application, the bleeding from large and dangerous wounds may be immediately staunch. In addition to the other valuable qualities of the liquid, it is totally devoid of poisonous agency, and easily prepared as follows:—Take 8 ounces of gum Benzoin, 1 pound of alum, and 10 pints of water. Boil all together for the space of eight hours in an earthenware glazed vessel, frequently stirring the mass, and adding water sufficient to make up the original quantity of that lost by ebullition, taking care, however, to add the water so gradually that boiling may not be suspended. The liquid portion of the compound is now to be strained off, and preserved in well corked bottles. It is limpid, like champagne as to colour, possessing a slightly styptic taste, and an agreeable odour.

THE POISON OF THE TOAD.

Popular tradition has from time immemorial attached a poisonous influence to the toad, but enlightened opinion presumed that the idea was an ignorant prejudice. All doubts however, as to the poisonous nature of the skin pustules of the toad and salamander-lizard are set at rest by recent experiments of two French philosophers, MM. Gratiolet and S. Cloez, who by inoculating various animals with the cutaneous poison of toads and salamanders, have demonstrated that the substances in question are endowed with well marked and exceedingly dangerous qualities. In order to determine whether the poisonous material spoiled by keeping, the two gentlemen procured about twenty-nine grains of the poison, on the 25th of April, 1851, and having placed it aside until 16th of March, 1852, they inoculated a goldfinch with a little of this material. The bird almost immediately died. Subsequently the investigators succeeded in eliminating the poisonous principle from the inert matters with which it is associated in the skin pustules, and they found that when thus purified its effects are greatly more intense than before. MM. Gratiolet and S. Cloez are at this time occupied in collecting a large amount of toad venom, and will shortly make known the result of their further investigations, which are calculated in the opinion of the investigators, to throw considerable light upon the nature and action of the poisons of hydrophobia, of serpents, of contagious diseases, and animal poisons generally.—*Spectator.*

INFLUENCE OF THE MOON UPON THE WEATHER.

A Paris Astronomer has published the results of twenty years' observations upon the influence of the moon upon the weather. From the new moon to the first quarter it rained (during the period of twenty years embraced in the calculations) 764 days; from the first quarter to the full moon it rained 845 days; from the full moon to the last quarter it rained 761 days; and from the last quarter to the new moon it rained 696 days; so that during the moon's increase there were 1,609 rainy days, and during her decrease only 1,457—a difference of 152 days. This difference is more likely to have been accidental than the result of any natural cause; and the conclusion which we derive from the statement is, that the moon has no influence upon the weather.

THE GREAT SUSPENSION BRIDGE OVER THE NIAGARA.—The *Lockport Journal* says that laborers are busily employed in pushing the Niagara suspension bridge to completion. It says:—

“Imagine a span 800 feet in length, forming a straight hollow beam, 20 feet wide and about 18 feet deep, with top, bottom and sides. There will be an upper floor to support the railroad and cars, 20 feet wide between the railings, and suspended by two wire-cables, assisted by stays.

The lower floor, 19 feet wide and 15 feet high in the clear, is connected to the upper floor by vertical trusses. The cohesion of good iron wire, when properly united into cables or ropes, is found to be from 90,000 to 130,000 lbs. per square inch, according to quality. The limestone used in constructing the towers will bear a pressure of 500 tons upon every square foot. The towers are 60 feet high, 15 feet square at the base, and 8 at the top. When this bridge is covered with a train of cars the whole length, it will sustain a pressure of not less than 405 tons. The speed is supposed to add 10 per cent to the pressure, equal to 61 tons. The weight of superstructure added, estimated at 782 tons, makes the total aggregate weight sustained 1,273 tons.

Assuming 2000 tons as the greatest tension to which the cables can be subjected, it is considered safe to allow five times the regular strength, and providing for a weight of 10,000 tons. For this thirteen thousand miles of wire are required. The number of wires in one cable is three thousand. The diameter of cable about 9½ inches. The bridge, we believe, is the longest between the points of support of any in the world.”

The Farm.

FEMALE EDUCATION AND INFLUENCE.

The language of this extract, from THOS. B. ARDEN's Address before the Putnam Co. Ag. Society, is not more beautiful than its sentiment is true. The character of those who are to be the farmers of the next generation, the principles which are to guide them, the homes which they are to have, will, in no inconsiderable degree, depend upon the mothers, who give the first impress to the susceptible nature of the child. We are glad to notice this happy allusion, and wish that this truth were more frequently presented on similar occasions. The mother is the very life of home, and as are the homes of a people so are their lives. If purity reign here—if high thoughts and right motives be taught here, the great question of life is settled, before the child leaves the paternal roof:—

Home associations and home influence are to be implanted and brought to maturity, by her who reigns in every domestic circle, and who alone possesses the key to our moral nature. The mother, who, from earliest infancy, has watched the slow development of latent energies, alone can ward off the worldly influence of school training, and fit her son to go forth into the world, prepared to meet, combat, and conquer the evils and temptations that skirt the paths of undeviating truth and moral principle. Man has not the same opportunity, nor has he the peculiar capacity for studying the character of children. When men are prepared for any particular profession, their education, beyond a certain point, is carried forward with a view to the particular requirements of that profession. Should not the mother whose field of action is, beyond a doubt, a separate and peculiar sphere, be invested with similar advantages?—And how is this end to be brought about—how is this high moral character and harmonizing influence to be implanted? I answer, educate your daughters; throw within the domestic circle those excellencies of character which you take particular pains to admire when abroad. Let benevolence, simplicity of character, truthfulness and charity towards your neighbor, be a constant theme of admiration and remark, and not only in the family circle, but in those gatherings of relatives and friends so constantly recurring in every community. Cultivate a love for music, and that grandeur and loveliness of nature which your own hills and valleys constantly present in the never ending panorama of the seasons. Point to the industry of the ant, the prudence of the bee, the contentment of the poor who trust in God. Early nurse a taste for flowers, for through every season they stalk in beauty through your woods and meadows, inviting you to a communion that brings with it no bitter thoughts. Every child will remember the little spot of ground set apart within the cottage door-yard, to beguile its hours of play, and years cannot erase from his memory the halo thus cast around his home. When I invite you to the field of flowers, understand me not to mean the favorites of other climes, (though I would not exclude them,) but the gems of nature which are to be found in your own forests and lowlands—something that is within the reach of all, and equalling, if not surpassing, in beauty, the natives of warmer climes. The rhododendron, the kalmia or laurel, the azalia, the orchis, the alder leaved clethra, the lobelia cardinalis or cardinal flower, together with its varieties, and the gentiana crinata or fringed gentian, are among those most conspicuous; the modest hepatica or liverwort, anemone or wind flower, and dog-tooth violet, are the first to greet us in the spring, like a messenger of peace, bearing assurance of Winter's relenting grasp.

For such I would invite you to labor; for the trouble of removing the soil will teach the useful lessons, that the food must be adapted to the plant; at the same time, it inspires that contentment of feeling which our happiness places beyond price. She who, by such an education, is made a truly valuable wife, best fitted to discharge the duties of a mother's high office, is also prepared to meet those strokes

of adversity which are the common lot, and still with cheerfulness walk on, guided by that principle “which maketh all things right.”

THE WAY WITH SOME PEOPLE.

Deacon S—— once employed a cobbler to take a few stitches in a boot, for which service he was asked half a dollar. The demand was considered exorbitant, but the deacon was not a man to have trouble with his neighbor on a trifling matter, so without a word of objection it was cancelled. “All will come round right in the end,” he said to himself.

Next morning, the deacon, who was a farmer, was on his way to his field with oxen and plow, when the cobbler came out of his shop and accosted him.

“Good morning, deacon. You're just the man that I hoped to see. The case is, I've hired the field yonder, and am going to sow it with wheat; but being no farmer myself, I wish you would stop and give me a little insight into the business.”

The other was about to excuse himself, for he felt particularly anxious to finish a piece of plowing that day, which he could not if detained at all, when remembering the boot mending, thought he, “The affair is coming right so soon. Here is an opportunity for illustrating the Golden Rule, and returning good for evil; I will render the assistance he needs, and when asked what's to pay, ‘Nothing, sir, nothing. I never make account of these little neighborly kindnesses.’ That will remind him of yesterday.”

So the deacon readily consented to do as requested, and going over to the field, commenced and finished sowing a bushel of grain; scarcely thinking, meantime of how his team was standing idle in the cool of the day; but glorying in anticipation of the smart his neighbor would suffer from the living coals about to be heaped upon his head. The employer, who, seated on a pile of stones in the centre of the field, had watched the process in silence, now rose to his feet, and very deliberately advanced towards the obliging farmer.

“Now, for my revenge,” thought the latter, seeing him about to speak, but the other only carelessly remarked, “It isn't much to do a thing when one knows how.”

The deacon made no reply but stood awaiting the question, “How much do you ask for your labor?” He waited in vain, however; the question was not asked. The other began to speak, on different topics, the farmer, unwilling to lose any more time, turned and hurried away to where he had left his team. He had gone some distance along the road, when a voice was heard calling,

“Hallo deacon! Hold on there a minute.”

The deacon turned his head, and his neighbor the cobbler, beckoned him back.

“He's just thought of it,” said the deacon to himself, half impatient at being again stopped. “My triumph is likely to cost about as much as it's worth, but I'll have it after all. Urge as he may, I won't take a single dime.”

So saying, he secured his oxen to a post by the roadside, and ran back as far as the wall, against the opposite side of which the cobbler was carelessly leaning.

“Why how you puff, deacon; there's no special haste called for. I merely thought to ask whether you don't imagine we shall have rain soon. You farmer's pay more attention to these things than we mechanic's do.”

The deacon coughed a full minute, and then answered that he really “could not say, but it seemed pretty near cool enough for snow,” and having given this opinion, he once more set his face farmward; musing as he went, whether it might not have been well to have attached to the Golden Rule a modifying clause, suited to dealing with such people as his neighbor of the awl and last.

The deacon loves to this day to tell the story and laugh over it; but he never fails to add, “Well, well, it ended just as it should; in as much as I was wickedly calculating and rejoicing over my neighbor's humiliation.”

VALUE OF AN ORCHARD.

Every farmer or mechanic who owns an acre of land, should supply it with fruit trees. The fruit would be worth more than any other product that he would obtain from it, besides the advantage of comfort and health to the family. One individual of our acquaintance cleared off the rocks and bushes from an acre of worthless land, and set out thirty-six apple trees. The fruit has paid for all the labor, the land and trees being now worth \$200.—*Culturist.*