paper upon which it is placed, the pencil point tracing letter after letter, until the reply is written, when with a rapid sweep it announces its conclusion by rushing swiftly back to the left, and stopping suddenly at the edge of the paper. These motions seem to those whose fingers rest upon the board to be entirely independent of their own wills, their only care being to avoid any resistance to its motions. The fact that it is impossible to suppose that the wills of two persons could be by their own desire mutually coincident, without previously concerted action, forms one of the most puzzling features of the subject, as the nature of the questions asked and answered precludes the possibility of collusion.

We have thus stated the facts relating to this mysterious little machine, carefully avoiding the expression of opinion, pro or con, in the hope of accumulating more data in regard to it, and because we believe that the key to the solution of the class of phenomena to which we think it undoubtedly belongs, may be discovered in the investigation of the cause of its movements.

## THE IMPOSSIBLE IN CONSTRUCTIVE SCIENCE.

In a brief article in No. 1, current volume, we spoke of the necessity of observing the laws governing mechanical science, and the folly of trying to evade them by denying their existence, or, at the least, doubting their immutability. The following from the *Engineer* treats more at length on this and cognate subjects:—

There are men who seize with avidity on any idea, however chimerical, which is novel, and apparently contains the germ of possible future greatness or wealth. Such men may be found in every walk of life; they are not rare in the ranks of any profession or calling. Sanguine of temperament, and blessed not only with great faith in themselves but with an almost childlike confidence in the powers which can be invoked by science, to them nothing is impossible. In their eyes the present is but a period of pure transition. The deeds of past giant intellects are as nothing compared to what future giants will achieve. Watt, Davy, Faraday, Stephenson, Arago, have but dug the trench and put in the concrete on which a magnificent edifice is to be reared up. Their puny battalions have but explored a few mountain passes—a little scrap of fertile land in a vast continent, which is in the future to be subjugated and made over as a whole to mankind by a select few of their fellow creatures yet to be born. To such simple minds the world owes something, yet not much. The excessive domination of hope in energetic, albeit ignorant men, has aided the great work of progress beyond question; but it is to be observed that few men of science, properly so called, now hold that much remains to be discovered in the great arcana of nature which can materially promote our happiness or our wealth; and the testimony of those who are most learned in the laws of natural philosophy, goes to show that the world has not perhaps quite so much to hope from the future as some would have us suppose. We do not hold that great discoveries may not yet be made, or magnificent inventions produced; but we do hold that it is very unlikely that either discovery or invention will ever again be given to a civilized people which can add to their comforts, or promote their wealth or happiness as greatly as past inventions and discoveries have blessed Britain. The more our knowledge extends the more evident does it become that walls of adamant stand between us and further progress in certain directions on the great highways of science. We admit that many roads remain unexplored. No man in his senses would attempt to prove the contrary; but the balance of evidence goes to show that discoveries out of the realms of pure science must be excessively rare, and that really great inventions—great as a means of materially promoting the happiness and well being of mankind, must be still rarer.

To the student, the enthusiastic inventor, and the ignorant alike, these statements will be eminently distasteful, yet they admit of being proved—proved at least in the sense that the records of the past, and the results of experiments and inquiry made from day to day and hour to hour now, confirm them. To illustrate our position we may cite a favorite argument with those who believe much in the future, little or nothing in the present. We are all more or less familiar with the man who laughs at the notion that we shall sink in the scale of nations when our coal fields are gone. He tells us cheerily that long before our coal is exhausted we shall have ceased to rely on steam as a motive power; that agents far more subtle and more energetic will have been made our willing slaves. Not thirty years ago such a proposition would have met with general acceptance. It would have been received as true because, having made a little progress in the study of nature's laws, we had achieved great things by the aid of the knowledge acquired. But it will not be received now by the philosopher. Groping in the dark, men found the steam engine. The brightest rays of the torch carried by the genius of knowledge fail to show us aught better. The researches of Grove, of Faraday, of Joule, ending in the discovery of the conservation of energy, dashed the hopes of the inventor to the ground. For fifty years men have labored to produce a motor better and more economical than the steam engine, and they have utterly failed. This is as nothing compared to what lies behind. The more we learn of the laws of nature the more evident does it become that no better motor than steam will ever be discovered. The thing does not apparently come within the possible in mechanical or chemical science. Neither the engineer, nor the chemist, nor the electrician, can help mankind to anything much better than the child of James Watt's brain. And observe the results following on each addition to our knowledge of the laws of motion. The moment the electro-magnet was discovered hundreds of minds jumped to the conclusion that here was a substitute for the steam engine; yet no electro-magnetic motors are now used save for the most trifling duties. The reason why such machines cannot compete with heat engines was not comprehended for some time. At last it was proved that all the power which an electro-magnetic engine could produce was represented by the oxidation of a given weight of zinc. The metal contained a store of power which was not present in the oxide, but was imparted in the deoxidation of the ore by the combustion of coal, in which alone the germ of power resided; and it is far more economical to burn coal to store up power in water than to burn it to store up power in zinc. We now know that nothing is to be hoped from electro-magnetism as a motive power. It has been assumed that the electricity should be derived not from zinc, but from some such arrangement as the remarkable induction machine illustrated in a recent impression. Apparently nothing is to be done but turn a handle to supply electricity *ad libitum*. There is no friction against rubbers to resist the revolution. Even here, where least expected, the great law of the conservation of force asserts itself once more. A sensible resistance to rotation is experienced precisely proportional to the quantity of electricity generated, and the truth is rendered apparent that the machine creates no new power. It does but transmute some of the energy expended in putting it in motion into the different form of electricity, which may yet again be transmuted into heat, light, or magnetism. Far from realizing more power, we cannot thus get back even the major portion of that which we imparted. And so it is, seek as we will. The more elaborate our search the more fully is the conviction borne in upon us that no means of producing motive power will ever be found to compete with the combustion of carbon or hydrogen.

In fact, as a result of the operation of this great law, that coal is the best power producer known to practical science, we find that the impossible is far closer to us than those possessing that little knowledge called a dangerous thing would have us believe. We cannot drive a ship at thirty miles an hour through the ocean, nor is there any reason to believe we ever can. The resistance increases up to a certain velocity as the cube of the speed; beyond that point, in a still more rapid ratio, not precisely determined. No combination of wood or iron could sustain the strain necessary to impel a ship sufficiently large to carry a little coal and an engine of adequate power across the Atlantic in three or four days. Here the impossible makes itself not only seen but felt.

In railway work, again, the progress made during the past fourth of a century has been really very small. At first the public held that a speed of ten miles an hour was impossible of attainment; thirty miles were reached, and the popular opinion flew over to the other extreme—why not travel at a hundred miles an hour? Obstacles all but insuperable stand in the way, and we are as far from travelling at the proposed rate now as we were before Stephenson was born. Many men will be slow to accept the proposition that progress becomes more difficult each year. It is none the less true. The path of the inventor becomes rougher and steeper the further he advances, and all the teachings of science go to prove that there is a limit to man's progress which he cannot pass; laws which he can neither break nor alter, work as he will. When things are brought before us which we know must depend for success on the infraction of some great ordinance of nature we assert that they are impossible, and men of intelligence admit that, assuming the law to be correct, we must be right. But they argue that we do not know the law, that it has never been written nor made clear. That this holds good of many laws, or assumed laws, in natural philosophy is true, but it is not true in those few and simple laws with which constructive science is most concerned. These are as familiar to the man of science as household words; none attempt to dispute their truth but those who lack education.

It is to the last degree unlikely that as much progress will be made during the last half of the present century as marked its first fifty years; but it is certain that progress of some kind will be made. From unlettered men, however, nothing is to be expected. An untutored Stephenson would have no chance of making a name in the present day. He who proposes to go beyond his fellows, to achieve victories greater than those achieved already, must come armed to the combat. It is not necessary that the young engineer must know everything, but he should make one subject his specialty, and know that subject and all the laws relating to it well, or he cannot hope to make the smallest advance. If he proposes to improve the steam engine let him learn all that can be learned about motors, and build on the foundation laid for him by others; if he means to construct bridges of wider span than the world has ever seen, let him study all that can be studied of the laws of strains and the strength of materials; let him learn as well what to avoid as what to adopt. The untaught genius has not the ghost of a chance in the present day, and this is why the necessity for education is felt now as it never was felt in this country before. Only the man of education can distinguish between the possible and the impossible; and, lacking this power, hundreds of men possessing inventive genius of no mean order waste their strength in endeavoring to climb inaccessible precipices or to beat down or elude barriers subtle, indeed, as a spider's web, but stronger and more infinite in their range than average intellects can conceive.

A Mean Swindle.—In another place we give an account of a glaring abuse of the franking privilege, wherein the frank of the Hon. John B. Logan is used to circulate the advertisement of an obscure Patent Agent. Now it is our opinion that no firm is worthy of confidence composed of persons who are too poor or too mean to pay their own postage.

## Dangers in the Use of Photographic Chemicals.

M. Davanne, lately read a paper on this subject before the French Photographic Society, Paris. An unfortunate photographer had been endeavoring to prepare some chloride of gold and potassium, but, making some error in mixing or making his solutions, he spoiled them. Upon consulting some one as to how he could get back his gold, he was advised to add ammonia to the solution, instead of the more wise plan of using sulphate of iron, formic acid, or sulphite of soda, etc. Chemical readers would not have added the ammonia, knowing that the dangerous compound known as fulminating gold would be produced; but all photographers are not chemists, although they should be. The poor man added ammonia, and made the explosive compound in considerable quantities. It naturally exploded, and, sad to relate, destroyed one eye completely, and injured the sight of the other very seriously, beside other damage.

Among other dangers to which photographers are exposed, is that which arises from the heavy character of the vapor of ether. Although all light may be a long distance away from the bottle from which the ether is being poured, yet the heavy vapor rolls down and over the receiving vessel, and finds its way to the ground like a stream of water; and if there be an open fireplace or furnace near, the draft from it will draw on the stream of ether vapor, and, igniting it, the flame will run along to the bottle as if along a train of gunpowder, and set fire to the ether in the hands of the operator, probably killing him by burning. Then the mixture of alcohol and ether vapors with atmospheric air forms a mixture as explosive as fire damp, and circumstances may arise in photographic manipulations when this dangerous mixture may be produced.

M. Davanne, who is a professor of chemistry, now proceeded to a practical demonstration of some of the properties of the dangerous substances that photographers might produce in their operations. He had prepared at home some of these, but, as he said, in very minute quantities; for, irrespectively of the danger to himself in making them, and the risk of injury to his audience in exhibiting them, there was the chance of doing damage and creating a disturbance on the Boulevards as he came with them to the meeting. He took a solution of chloride of gold and added ammonia to it, and showed the precipitate of fulminating gold, which had done so much injury to his correspondent, and, taking a minute quantity of it, which he had previously dried, he caused it to explode by merely touching it on a glass plate with a glass rod. A piece of filtering paper, on which was a minute portion, was held over the flame of a spirit lamp, and exploded immediately; and a capsule in which was a little was shattered to atoms and scattered over the room.

M. Davanne then called attention to a similar compound of silver, which might be easily produced by an unwary photographer, especially that solutions of oxide of silver in ammonia are now so frequently recommended for photographic purposes. A solution of nitrate of silver in ammonia is harmless (*i. e.*, a solution of oxide of silver and nitrate of ammonia, with excess of ammonia); but if the oxide be precipitated from this solution by caustic potash, a compound is produced of even greater explosive properties than fulminating gold, viz., fulminating silver. This dangerous compound, not content with "going off" when dry, is so unstable that it will detonate under water!

Then, photographers with a smattering of chemistry may know that iodine and iron combine and make iodide of iron without danger, and, by a wrong process of reasoning, may conclude that iodine and ammonia will combine quietly and produce the iodide of ammonium for their collodion. Nothing is more fallacious, and now that the ammonio-iodides are again before the photographic public, manipulators who "prepare their own chemicals" will do well to be cautious in mixing iodine and ammonia. This mixture, unless accomplished as recommended by the Rev. J. B. Reade many years ago, will produce an iodide of nitrogen in the form of a brown powder, which is so explosive that if only touched with a feather when dry, will immediately explode.

Another frightful compound of nitrogen is produced whenever nitrogen is passed through a solution of sal ammonia (chloride of ammonium); and although at present photographers are not likely to have anything to do with this fearful compound, M. Davanne wished to point out its properties. It is an oily liquid, and explodes almost without actual touch, smashing lead dishes in which it may be placed, and carrying destruction all around. The discoverer was maimed twice with it, other experimenters have not fared much better, and M. Davanne confessed he had never seen the compound, and never wished to do so.

But there is still another compound of silver which is dangerous, and which a photographer might unwittingly produce—the fulminate of silver. If a solution of nitrate of silver containing nitric acid be warmed, and alcohol added, a white precipitate forms, which is the compound in question, and which is very dangerous, as will be conceived when we remember it is that compound to which percussion caps owe their good qualities, and which, when carelessly handled, not unfrequently will blow up a whole factory, machinery and all. A photographer evaporating to dryness an acid bath which had been in use long, and contained alcohol, might find himself and his dishes elsewhere toward the termination of the boiling down of the solution.

The fastest time, to the best of our knowledge, ever made by a steamboat, was the late run of the *Daniel Drew*, from Yonkers to this city, a distance of fourteen and a half miles, in thirty-four minutes and forty-five seconds, or at a rate of over twenty-five miles per hour.

### Railroad Track-layer in California.

WE have before alluded to the success of a railway track-layer used on the California section of the Pacific Railroad. It appears from recent intelligence to be working regularly at the rate of a mile a day, with the promise of better results when some small defects are obviated. Some of its work has been done at the rate of two miles in twelve hours, but one mile is considered as its present working capacity. The contractor and directors of the Vallejo and Sacramento Railroad, although most of them were skeptical, and some quite dissatisfied about the delays in getting it into operation, give it the highest praise, and have made their arrangements in reliance upon it.

The machine is a car sixty feet long and ten wide. It has a small engine on board for handling the ties and rails. The ties are carried on a common freight car behind, and conveyed by an endless chain over the top of the machine, laid down in their places on the track, and when enough are laid a rail is put down on each side in proper position, and spiked down. The track-layer then advances, and keeps on its work until the load of trees and rails is exhausted, when other car loads are brought. The machine is driven ahead by a locomotive, and the work is done so rapidly that sixty men are required to wait on it, but they do more work than twice as many could do by the old system, and the work is done quite as well. The chief contractor of the road gives it as his opinion that when the machine is improved by making a few changes in the method of handling rails and ties, the necessity of which changes is now apparent, it will be able to put down five or six miles per day unquestionably. This will render it possible to lay down track twelve times as fast as the usual rate by hand, and it will do the work at less expense.

The invention will be of immense importance to the country in connection with the Pacific Railroad, which, it was calculated, could be built as fast as the track could be laid, and no faster; but hereafter the speed will be determined by the grading which cannot advance much more than five miles a day. Thirty millions of dollars have already been invested on the Pacific Railroad, and if the time of completion is hastened one year by this track layer, as it will be if the Central and Union Companies have money enough to grade each five miles a day, there will be a saving of $3,000,000 on interest alone, on that one road.

The track of the Sacramento and Vallejo Road has been laid for eight miles out of Vallejo, and it is to go on directly to Suisun, which is to be reached before the 1st of June, and thence to go on to the crossing of Putah Creek where the cars are to run by the 1st of July. The road passes over a good deal of tule within fifteen miles of Sacramento, where the grading cannot be done till the Fall, so no time is fixed for the completion of that part of the work, except that it must be as soon as possible, and before the 1st of November in any event. The Company has fifty thousand ties on hand, and has lately contracted for fifty thousand more, to be delievered as fast as needed.

### New Cement--Liquid Glue.

FEW things are in more constant demand among mechanics than cements, and it must be admitted that most of those in common use are open to improvement. We have recently met with some receipts in the French and German journals, which we put together for the information of our readers. The first is an iron cement, which looks likely to be useful. It is made by mixing from four to five parts of dry clay, two parts of iron filings, one part oxide of manganese, half a part of salt, and half a part of borax. When the cement is wanted for use, this mixture is made with water into a paste, which is applied immediately to the pieces to be joined. It is then allowed to dry gradually, and is subsequently heated to whiteness. After this the cement will resist water, and of course heat. Another, said by Stinde to be a very useful cement, is made by mixing equal parts of oxide of manganese and oxide of zinc, and making them into a thinnish paste with the solution of scilicate of soda of commerce. This paste must be applied quickly, as, no doubt, it sets very rapidly. It is not calculated to resist heat and water—the latter, at all events, not for any length of time. Another receipt we find is for a strong liquid glue. To make this the inventor puts three parts of glue with eight parts of cold water, and lets them stand for several hours to soften the glue. He then adds half a part of muriatic acid and three-quarters of a part of sulphate of zinc, and heats the mixture to 185 deg. Fah., for ten or twelve hours. The mixture remains liquid after cooling, and is said to be very useful for sticking wood, crockery, and glass together.—*Mechanics' Magazine.*

### Paint for Stoves.

BLACK lead is a great institution in this country, and probably few but cooks and housemaids would care to see its use diminished. It certainly has its recommendations, but it can hardly be said to be ornamental, while it entails an immense amount of labor on our servants. In Germany, where a stove and sort of kitchen range are continually to be found in the common sitting-room of a respectable family, the unsightliness seems to have been felt, and a suggestion has been made to do away with the black lead, and paint the stoves and ovens. Oil paint, of course, cannot be employed, but water-glass (scilicate of potash) colored with pigment to match the paint of the apartment is the material recommended. Before this is applied the iron must be thoroughly cleansed from grease, and all spots must be rubbed off with a scratch brush. Two or three coats of the paint may then be put off and allowed to dry, after which the fire may be lighted without fear of injury to the color, which may, indeed, be heated to redness. Grease or milk spilt over the paint has no effect upon it, and it may be kept clean by washing with soap and water. Dutch ovens and like utensils may also be coated with the same materials, and the labor spent in polishing be saved. A good coating of the paint, the author says, will last a year or two.

### The Strike at the Iron Works in Troy.

A CORRESPONDENT furnishes the *Times* with some interesting facts concerning the above serious strike. It appears that a number of men employed at the rolling mills owned by H. Burden & Sons, Erastus Corning & Co., and John A. Griswold & Co., is about seventeen hundred; the weekly earnings, $25,000; value of one week's productions, $105,000; consumption of coal per week, 1,700 tuns; weight of pig iron used per week, 1,200 tuns.

The strike is now in the third or fourth week of its career, the puddlers and their helpers being the parties chiefly concerned, although some of the rollers and heaters are believed to sympathize witn them.

The puddlers earn about $20 weekly, (five days' work), and and the helpers make about $11 in the same time, including lighting up. The cost in wages of making one tun of bar iron from the pig is about $22. The advance asked by the strikers would increase the cost about $2. This the proprietors of the mills affirm, will take away all the profit they are making on bar iron; for this reason they had rather close their mills than agree to the strikers' terms.

The men are acting peaceably, a considerable number of them having gone as laborers to build the railroads now being constructed from Chatham Four Corners to Bennington and from Glens Falls to Fort Edward, although they are in receipt of less wages than if working at the mills. They expect by this to force the mill owners to accede to their terms and at the same time earn enough to keep themselves and families until the lighting up of the mills.

It is impossible to say to what extent the mill owners may be inconvenienced by unfilled orders, but it is generally reported that they can get their pressing orders filled at other works without loss, waiting until their hands are tired of the lock-out or on the approach of cooler weather get other hands to take the place of those who choose to hold out. It is a well-known fact that it does not pay to run iron works in the hot weather, the quantity of coal consumed being much greater for the same production than in cooler weather. For this reason some works are closed in July and August, at which time they take inventory and make their annual repairs.

If this plan was generally adopted it would be alike beneficial to owners and workmen, as the former would save fuel, and the latter would be unemployed at the season of the year when their services would be in demand in the country.

### A "Devil Fish."

The *Charleston Mercury* says: "We had the pleasure of a conversation with Prof. Holmes yesterday afternoon, in relation to the submarine monster recently captured by a fishing boat, and now on exhibition on South Bay. The Professor says it is what is known as the sea eagle or clam cracker, a fish very common and abundant in our waters. It is also known by the name of eagle ray or stingaree, a corruption of Stingaray. Very large specimens, some weighing as high as five hundred pounds, were caught here some years ago, their heads and teeth preserved, and may be seen at any time in the Charleston College Museum. They have a snout similar to that of a hog, and root in the mud for clams, which they crush in their mouth with perfect ease; the jaws, instead of being formed of flesh and teeth, having a series of bony plates. The present specimen weighs between 250 and 300 pounds. It is five feet two inches wide from tip to tip of the wings, and four feet long from the snout to the base of the tail. The tail measures five feet, thus making the whole length of the fish nine feet. The negroes in their fright after its capture, in order to disarm it, broke off the stinger, a protuberance from the base of the tail, which is used by the fish as its greatest means of defense."

### Microscopy and Cholera.

At the last meeting of the Royal Microscopical Society in London, a paper of great interest was read by Dr. Thudichum, "On the relation of microscopical fungi to pathological processes, especially to the process of cholera," in which, after explaining the hypotheses advanced by those who maintain the parasitic origin of cholera, he severely criticised the methods by which their conclusions had been arrived at, and showed the unsatisfactory nature of the conditions under which their experiments had been made. He showed further that the so-called fungoid bodies found in the "rice water" evacuations of a cholera patient were not of vegetable origin, neither were they specific forms, but were identical with those which were equally found in all other decomposing animal tissues and secretions. The results of a large number of personal experiments and observations, extending through various epidemics since 1850, were adduced to show that the choleraic process was the result of chemical, and not of vegetable parasitic action.

AT a meeting of the Société de Photographie, of Paris, M. Civiale made some observations upon the employment of sulphur cyanides in toning and fixing. He stated that in the summer of 1867, he fixed about 700 positive proofs by means of potassium and ammonium sulphocyanides. A print, one half of which had been protected from the light, the other unprotected, and which had been exposed for three months, showed only an uniform tint.

### Lightning on the Telegraph Wires.

During a recent storm at Cincinnati, Ohio, the lightning followed the wires into the office, and at each flash concentrated in a sheet of flame on the switch board, producing a concussion similar, at first, to the discharge of a score of rockets, quickly followed by two reports as loud and distinct as the discharge of a six-pound cannon, succeeded in turn by a volley of musketry. It became necessary to disconnect all the wires, and keep them disconnectd about an hour and a half. Some of the operators, who were unused to such severe electric displays, supposed at first that the "day of reckoning" had come.

## Editorial Summary.

JOHN BOURNE, the well-known author of the "Catechism of the Steam Engine," and other engineering works, has recently undertaken a new work upon "Modern Steam, Air, and Gas Engines," in which it appears that he claims to have originated nearly all the improvements made in the steam engine since the days of Watt. Part one only has been issued, which gives evidence of considerable self-satisfaction on the part of the author; at the same time it attests his ability to furnish valuable information. The dry engineering details of Mr. Bourne's work are to be relieved by some self-glorification which will no doubt be quite readable.

*The Engineer* and *Engineering*, both able journals, published in London, are quarreling about their respective circulations, and *Engineering* goes so far as to twit *The Engineer* of having published falsehoods in relation to the matter. We regret that our dignified cotemporaries should permit themselves to war upon each other in this unseemly manner. We do not wish to become parties to this controversy, as it does not much concern us, but we think that if the SCIENTIFIC AMERICAN had a circulation of not more than 5300 copies per week, we should be very careful to keep out of a quarrel about it. The SCIENTIFIC AMERICAN has a greater weekly circulation than the whole of the English and American scientific papers combined, but we do not propose to quarrel about it, on the contrary we are quite happy.

GALIBERT'S APPARATUS IMPROVED.—We have previously given a description of this patent hood, by means of which any person can penetrate into poisonous atmospheres without danger. While communication is kept up with the external atmosphere, the wearer of the apparatus is obliged to rebreathe the air expired by his lungs, and the latter soon becomes surcharged with carbonic acid. M. Galibert now obviates this difficulty by providing a receiver into which he puts potash, the effect being to absorb the poisonous gas and make the expired air again fit for respiration.

THE London local Post Office is one of the best conducted institutions in the world. It employs 1,152 letter-carriers, who distributed 76,000,000 letters in 1863, and in 1868 it is estimated will deliver 90,000,000; that is, 1,730,000 letters per week, and 288,000 per day. Carriers are paid about twenty-five shillings per week, nearly $8.75, and the expense of the department is estimated at £120,000. The net profit amounts to nearly £300,000, or two millions of our money.

CARBONIZING TIMBER.—A Mr. Payen is reported in an English exchange as favoring the process of superficial carbonization of timber, as known and practised by the Romans. He recommends that the whole surface of ships should be carbonized, and for this purpose suggests the use of the gas blow pipe, or when gas is not at hand a blow-pipe and lamp fed with heavy petroleum oils. The carbonization of wood exposed to wet is no doubt useful. It has been employed for many years for preserving fence posts, but it would be rather expensive to apply the process to the hull of a ship as proposed.

MUSKETOES.—A correspondent complains that he is so much annoyed with musketoes that it would be a great blessing if some one would suggest a wash to be applied to the skin that would drive them off. We cannot recommend a wash for their purpose, but have heard it said that the faint odor of crystallized phenitic acid will drive insects from a room.

COLORS.—It has been found, while firing at the "running man" target, at Wimbledon, England, which is scarlet on one side and gray on the other, that the scarlet dazzles the eye, and is hence the most difficult to hit, from leaving a red streak behind it, which unsettles the aim. The gray side was struck seventy-four times and the red only forty-two times. It is a curious fact, too, that those with gray eyes hit fairer than those with eyes of other colors.

PERSONS who wear kid gloves in hot weather, and who perspire freely, will find that injury to the gloves will be prevented by applying ordinary corn starch to their hands (dry) before drawing on their gloves.

HUMBOLDT regards the climate of the Caspian Sea as the most salubrious in the world. Here he found the most delicious fruits that he saw during his travels, and such was the purity of the air that polished steel would not tarnish even by night exposure.

DURING a thunder storm at Birmingham, England, meteoric stones from one eighth to three eighths of an inch long, and about half those dimensions in thickness, fell in immense quantities in various parts of the town.

THE death of a little girl at Kimmswick, Mo., resulting from the sting of a locust, is noted by the local papers.