A REMARKABLE GEOLOGICAL DISCOVERY.

Mr. Charles M. Wheatley, for many years a member of the Lyceum of Natural History of New York, and known to be an excellent naturalist and geologist, informs us that he has found a "bone cave" a few miles from Phœnixville, not far from the famous Wheatley mines, from which such choice specimens of lead ore were obtained a few years ago. This is one of the most important geological discoveries thus far made on our continent. It is the fi st genuine bone cave of America, and will help to solve some of the questions of ancient animal life of the Western continent. The floor of the cave is covered with remains of animals that are supposed to belong to the post-tertiary epoch. Professor E. D. Cope, of Philadelphia, is working up the animals, Mr. Horn will describe the insects, and it is hoped that Professor Newbery, of Columbia College, will study the plants.

So far, the investigations have disclosed 22 vertebrates, 5 insects, and 10 or more plants. Among the animals are the following: A large sloth, with gigantic claws, called by Jefferson the *Megalonyx*; a mastodon, with a tusk 11 feet long; a bear, fully as large as the grizzly bear, but entirely distinct in character from all the existing species of North America and the northern regions of the old world, as well as from the cave bear; a tapir, a horse, a wolf, and other skeletons not yet described.

We do not understand that any human remains, or any implements fashioned by human hands, have thus far been found. Many geologists are of the opinion that the mastodon, gigantic elephant, the great sloth, and many other of the extinct animals, have lived since the time of man, and the discovery of human bones in such a cave would confirm the theory.

Further developments will be looked forward to with great interest by the scientific world.

THE PECUNIARY PROSPECTS OF THE EAST RIVER BRIDGE.

The present winter has been unusually cold at this point, and both the North and East rivers have been filled with floating ice barriers, seriously interfering with the traffic between New York and the neighboring cities on Long Island and in New Jersey. The ferry companies have sustained much loss from damage to their boats, and people residing in the cities alluded to, and doing business in New York, have been obliged to submit to much detention.

These untoward events have given rise to much discussion, more particularly in the Brooklyn papers, as to the desirability of the early completion of the East River Bridge, which is evidently looked forward to as the great solution of the problem of quick transit between the two cities.

This bridge will, of course, if successfully completed, form an avenue by which travel may pass, unimpeded by fogs or ice, and free from the present inconveniences of ferry travel, but in our opinion it can never supersede the ferries as a means of transit, except on the occasions when ice or fog renders ferry passage unusually dangerous.

It is folly to suppose a single means of communication can absorb the whole travel between New York and Brooklyn, or a tenth part of it. The termini of this bridge can be reached, by a large portion of the residents of the two cities, only through an expenditure of as much time as would suf fice to reach their homes by the routes they now take. Under ordinary circumstances, few will go, from a ferry that in fifteen or fewer minutes will place them across the river, a distance of a mile, or even a half a mile, to walk or ride across a bridge one mile in length.

In the ordinary routine of business, the travel will follow the shortest routes, and if a slight additional risk be unavoidable, it will take the risk, rather than make the sacrifice of time.

The traffic of the bridge will, in fine weather, be confined to small areas in the immediate vicinity of its termini; and that this, in connection with increased travel in bad weather, will make it a paying investment, we cannot believe.

In the provision of channels of communication for large and populous towns, not one large avenue, but many smaller ones, best meet the needs of the population.

INTELLIGENT LEGISLATION ABOUT MEDICAL PRESCRIPTIONS.

A bill has been presented at Albany which reads very much like a hoax, and we should hesitate to allude to it if it were not pretty well authenticated. There are three points in it. First, it is proposed to appoint a commission of five physicians to examine the prescription clerks of druggists, to see if they are competent to be licensed for their professions. As an offset to this, it might be well to have a commission of druggists to examine the physicians to see if they know how to write prescriptions. Second, Latin prescriptions are to be prohibited, in consequence of frequent blunders committed by druggists' clerks, not to say by ignorant doctors. Third, as the prescriptions will hereafter be in English, the patient will be able to ascertain what medicines the doctor recommends, and, in case of a second attack, can send to the apothecary to have the same remedies put up, and thus avoid the necessity of paying a second fee to the physician. To prevent this shrewd economy on the part of the patient, it is proposed to prohibit the druggist from putting up a prescription a second time, unless by order of the doctor, and thus to compel the invalid to send for the doctor, or to have recourse to quack medicines, the sale of which it is not proposed to restrict. It is difficult to conceive who could have concocted such a bill as this, so full of conceit on the part of physicians, so unjust to druggists, and so revolutionary in the whole history and practice of medicine.

If we could enact by law that the physician should know his profession before obtaining his degree, and the druggist his business before procuring a licence, it would be a good thing; but how to frame such a law, and how to enforce it, is not so easy a matter. And, to cap the climax, it is proposed to empower the mayor, who is supposed to be well read in phy ic, to appoint the examining board of five physicians, and thus to make our apothecaries' shops a part of the great political machine. As there are many drug stores in the city, and an army of clerks, each one of whom would have "to see" the five political doctors before obtaining a licence, it would be a good thing for the doctors, but we are not so convinced that the public would be any better served than they are under the present system.

Better leave the Pharmaceutical College to take care of the druggists, the Medical College to look after the doctors, and the mayor to attend to the business properly appertaining to his office.

HOW THE ICE BRIDGE IS FORMED IN THE EAST RIVER.

Within the week past, many thousands of persons have crossed the East river, between New York and Brooklyn, walking on the ice. It is popularly supposed that the preliminary to this feat must have been the freezing over of the river; and on every occasion of the kind, we are entertained with marvelous stories of the hair-breadth escapes of the venturesome pedestrians. A friend who resides in full view of the river, and who has for years observed the formation of these ice bridges, was one of the many crossers on Monday last. From him we derive the following explanation of the phenomenon:

The ice bridges of the East river are dependent entirely upon two simple conditions. The first of these is the existence of large fields of heavy floating ice *in the North river*, and the second is the prevalence of a westerly wind at the time the tide-stream ceases flowing toward the ocean, and commences to flow up the rivers—technically, at the last of the ebb and the first of the flood. Ice is very rarely formed in either of the river channels about New York, and may be said never to be formed with any sustaining power. Drift ice may be frozen together, and thus form in masses, but the currents are too active, and navigation too incessant, day and night, to permit anything like the freezing process usual in less disturbed localities.

To understand the formation of the ice bridges in the East river, we must premise that the width of the river at its mouth, opposite the Battery—described by the position of Hamilton Ferry—is twice as great as its width at the point near Catherine Ferry, where the bridge is being constructed; the latter point forming, as it were, the neck of a funnel. It is also needful to know that the tide-stream begins its upward flow in the East river, half an hour, and sometimes a full hour, before the same flow occurs in the North river. Let us imagine ourselves as floating in the North river, upon one of those immense fields or ice, which, by various means, become detached from the main body at a considerable distance northward from the city. We have been floating down toward the ocean for some five hours. We arrive at the lower point of New York Island after the tide-stream has commenced the upward flow in the East river. A westerly wind prevails. The downward stream on which we float is ceasing, because the ocean tide is already coming in to check it, and because of the large expanse of water in New York Bay. The wind drifts us, little by little, along the easterly shore of the bay. Presently the North river tide-stream is turned, and runs back up the river. But the East river stream has now attained a considerable velocity, and is "sucking" in from the North river whatever comes within its reach. The westerly wind facilitates this, by driving our ice field within its clutches, and then our journey up the East river is begun. A few moments suffices to bring us to the "neck of the funnel." One side of our ice field strikes the Brooklyn shore, and it is thus held, while the other swings forward until it strikes on the New York shore. If the ice be sufficiently firm and compact, it thus becomes a wedge, which the flowing tide but makes the stronger and more secure. Thus none but compact ice is strong enough to resist the tide, and that which does resist it is abundantly secure, not only for pedestrians, but even for horses, sleighs, and cars, if the use of them were practicable.

Only when the tide changes, and the stream returns toward the ocean, is the bridge broken. Then risks are run in endeavors to get off from the the moving ice. But the risks and dangers do not arise from the insecurity of the ice itself. All around the edges of the great field are small, detached pieces. Many persons, when they find themselves being floated off by the new tide-stream, become alarmed, and seek to reach the shore by hastily jumping upon these detached pieces, or by trying even to walk upon the water itself, and their temerity is punished in the usual way. Safety is only a question of time and endurance to those who have courage enough to remain and float until a landing may be effected directly, or by means of a boat.

RAIN STATISTICS.—Water is so universally present in the air that the influence of the moon upon the rain-fall, as on the sea, in the tides, may be watched with interest. Mr. Glaisher asserts, after much long and patient investigation, that the ninth day of the moon is the most rainy of the whole twenty-eight, and that in the first and last weeks of the moon's age, the rain-fall is less than the average. The records kept by Mr. Glaisher also indicate four o'clock in the afternoon as the rainiest hour in the day.

PROGRESS OF FOREIGN INVENTION.

It is interesting to watch the progress of invention abroad, and see how the inventive minds of both hemispheres move in parallel grooves. Our late exchanges bring accounts of several inventions recently patented in England, which have also been recently patented in the United States. Doubtless some of the English applicants have pirated American inventions which they knew were valuable in England, the door having been left open by neglect on the part of the original inventor, to secure his invention by foreign patents.

ORNAMENTING PAPER.

Mr. H. Airy, of Greenwich, England, has patented a process which consists in ornamenting paper, woven fabrics, and other surfaces, first. by the swinging of a compound pendulum, whereby a great variety of separate figures is drawn in ink of any kind, or in pencil, on paper of any kind, or on wood, or by a pointed instrument, on steel or copper plate coated with protecting matter for etching, whereby, also, these figures are traced by a pointed instrument on the surface of a copper cylinder coated with protecting matter; second, by a machine which closely imitates the natural figures drawn by the pendulum, and also executes a great variety of kindred figures, all coming under the definition given above. The machine is made to trace or engrave these figures on the surface of a copper cylinder, such as is used by cotton printers and others, or on the surface of a copper, or other soft metal plate.

INSTRUMENT FOR MEASURING ANGLES.

This is also an English invention. A reservoir of any suitable shape and material is formed, with an opening in its upper side or top, or elsewhere, and with this reservoir, at or near its upper and lower parts, are connected the two ends of a bent glass tube. The tube is raised at an angle or horizontally. The reservoir is partly filled with fluid, and the opening hermetically closed so as to prevent any escape of the liquid employed. One or each of the legs of the tube is marked with a scale or indicator representing degrees, minutes, and divisions of minutes, and when needed, another scale is placed in close proximity to the legs of the tube, and so constructed as to represent at once the distances corresponding to the angles of depression or elevation for given hights, indicated by the position at which the fluid subsides. The reservoir and tube are fitted in a frame or case, to preserve them from injury. Over the reservoir a shield of wood or other material is fixed by screws or otherwise, and when necessary, some non-conducting substance is inserted between the shield and reservoir, to prevent any effects from changes of temperature upon the fluid and reservoir. The top surface of the frame of the instrument will, as a rule, be made perfectly straight, and when so made for moderate distances, such as those visible to the naked eye, the line of sight could be taken along with it; but where long distances have to be brought within view, and great accuracy is required, a telescope is placed on the upper edge of the instrument and adjusted at an angle or otherwise to the horizon. The instrument, whether to be used with or without a telescope, is accurately graduated by a theodolite.

APPARATUS FOR EVAPORATING LIQUIDS IN SUGAR REFINING, ETC.

This is a French invention, in which the process of evaporation or boiling is commenced: either at the atmospheric pressure, with a decrease of one tenth, or one twentieth, or less (according to the number of boilers employed), in each succeeding boiler; or the process may be commenced at a pressure above that of the atmosphere and terminated at a pressure equal to the atmosphere, or, if desired, considerably below it, in which latter case, the two systems of evaporating above and below atmospheric pressure will be combined in one series of from twenty to forty boilers. The tubular steam space of the first boiler communicates by a pipe and suitable stopcocks, either with the exhaust pipe of an engine or direct with the boiler or steam generator. From the top of No. 1 evaporating boiler of the series, a pipe conducts the steam arising from the liquid under evaporation into the tubular steam space of No. 2 boiler, which discharges its steam arising from the evaporating liquid, through another pipe into the tubular steam space of No. 3 boiler, and so on throughout the series, the pressure in each decreasing by about from one tenth to one twentieth of the original pressure; for example, if the pressure in No. 1 boiler be that of the atmosphere, that of No. 2 will be (say) one tenth less, that of No. 3, two tenths less, that of No. 4, three tenths less, and so on. The liquid to be evaporated is introduced by a pump and stopcock into No. 1 boiler, and flows through connecting pipes and stopcocks into the others of the series, after which the connections are stopped, and the steam is let into No. 1 boiler, when the process commences; the steam or vapor arising from the last or nearly the last of the series, may be conveyed to a condenser. The requisite amount of vacuum is maintained in each boiler by one or more air pumps and stopcocks, and the contents of each boiler may be discharged through cocks or valves at the bottom thereof.

MACHINE FOR CUTTING TOBACCO, ETC.

This is an English invention, in which timber, tobacco, and various substances are cut, not by a saw, nor by a knife pressing merely against the substances, but by a knife or knife edge made very sharp, and moved in the manner of a saw, so as, in fact, to constitute a saw (whether band, circular, or any other), but formed without teeth; and a stationary sharpener, consisting either of a piece of bone, steel, or other suitable material, or of a succession of those pieces being applied to the edge of the moving knife, so as to make the knife edge rub against such sharpener set at a proper angle with the edge, whereby the edge is constantly sharpened in the same way in which any knife is sharpened on a hone,

only that in this case the motion is continuous. The inventor employs these circular, band, or reciprocating knives in substitution of saws, to cut timber and other substances; and the cutting is effected with the production of a smooth surface, and without waste; and he also uses such knives or knife edges, moving not merely like a chopper against the substance to be cut endways, but like a saw, to cut tobacco and all kinds of fibrous or other similar substances requiring to be cut cleanly and without jagging.

HYDRO ELECTRIC CABLE.

This is the invention of F. Tomasi, of Paris, France. The cable is composed of one or several pipes of copper or other convenient material, equal in number to that of the despatches it may be desired to transmit simultaneously. Each pipe leads respectively and separately at one end into a little cylinder provided with a piston, and at the other end into a bent glass tube which contains some mercury. A platinum wire, isolated everywhere except at its extremity, which is always immersed in the mercury contained in the tube, is in communication with a terminus or screw nut. Another wire, also of platinum, which can be immersed more or less deeply into the mercury in the glass tube at will, is connected to another similar terminus, and a third wire, also of platinum, isolated everywhere except at its end, is in contact with a third terminus. The last wire is immersed in the glass tube, so that its uncovered end can only come in contact with the mercury at its upper level, The second mentioned terminus is put in contact with the receiving apparatus, and the latter with the pile, which in its turn is connected with the first mentioned terminus.

LUBRICATING OILS.

A Scotch inventor combines caoutchouc with mineral lubricating oils. In preparing the improved mineral lubricating oils, the oil obtained from the destructive distillation of shale at a low red heat, and refined by redistillation and treatment with acids and alkalies, is employed; and it is so far freed from paraffin as to be liquid at, say, 30° to 40° Fah., then refined to the extent which produces an oil of a permanent light yellow color, practically free from pungent odor. In this mineral oil about one per cent of caoutchouc, preferably in the form of sheet india-rubber, is dissolved, and the solution is effected by first allowing the caoutchouc to remain immersed in the oil for a few hours, the oil being, during that time, maintained at a temperature of about 100° Fah.; and, second, by violently agitating the caoutchouc and oil together for about twenty-four hours by means of a mechanically driven dasher or agitator. However, heat alone, or mechanical agitation alone may be used for effecting the solution of the caoutchouc in the oil; a more perfect solution is obtained by employing the methods together. After the solution or combination of the caoutchouc with the oil has been effected, the prepared oil is allowed to settle until it has become clear.

THE PRESENT AND THE PAST.

NUMBER V.

The incredulous reader, who has lived a lifetime by the banks of some swift running and powerful stream, on reading our last contribution, says at once: "Our stream has not sunk its bed, within our recollection, at the utmost more than a few inches, if that; it has not altered its channel more than a few yards; and what it has removed from one place it seems to have redeposited in another; and yet you would have us believe, that these rivers of the West have eaten into the bowels of the earth six thousand feet; have given rise to a series of elevated plains, traversed by endless water-courses; and have carried away rocks not to be estimated by tuns, but thousands upon thousands of cubic miles! It is too incredible; just think for a moment of the time required in such an operation; millions of years will scarce meet the demand! Can you not explain all this by the aid of fractures and dislocations of the strata and by the more energetic and rapid action of the breakers of the sea, while the land was gradually emerging from the ocean?"

No! good reader, we cannot relieve you; the facts of the case forbid a doubt, for Nature, in this instance, has recorded her own method of procedure in unmistakable characters. In the first place, the idea of these water courses being on the line of fissures or dislocations is utterly untenable. The rocks on either side of them are undisturbed, and the very sinuous course of these numberless streams forbids of their being on the line of faults. But the evidence against any action of the sea is, if possible, even still stronger.

Everywhere throughout this region Nature has left monuments to record the progress of her destroying hand. Here and there, harder portions of the rocks eroded have resisted the action of the atmosphere, and stand in fantastic shapes, resembling, as Dr. Newbery remarks, "the forms of churches, castles, gates, and monuments of various kinds." In one locality, a number of such monuments give the idea of a vast cemetery of gigantic tombstones. Had it been the violent action of breakers that had eaten away this land, these monuments had not been left. Do you doubt this statement? Then let us descend with our guide, into the gloomy depths of the cañons, and hear what Dr. Newbery says of these monuments in the early stages of their formation: "Near the mouth of the Diamond River, by the intersections of the numerous cañons which cut the plateau, portions of it have been left in a series of pinnacles and pyramids, frequently standing entirely isolated, forming some of the most striking and remarkable objects seen on our expedition. Many of these buttes exhibit a singular resemblance to the spires and pyramids, which form the architectural ornaments of the cities of civilized nations, except that the scale of magnitude of all these imitative forms is such as to render the grandest monuments of human art insignificant in comparison with them. Oh, man! what becomes of your old churches and castles, your colosseums, and triumphal arches, your ruined cities of the desert, your pyramids, and of the Cyclopean masonry of your lost races, by the side of these, the ruins of an ancient continent?"

But pardon me, reader; you ask, why could not these buttes that our guide describes, have been carved out by the action of breakers? Simply because in the depths of these cañons, even if the sea ever had had access to them, no breaker action could be possible. Visit the fjords of Norway, smaller cañons actually partially submerged, and see the land-locked waters lying these, but harmlessly ruffled by the wildest gale, and you will realize that neither Scandinavian fjords nor Colorado cañons were ever formed by breaker action. And if the buttes below, now forming, do not owe their shapes to any such cause, may we not reasonably infer that the same statement applies to the buttes on the plateau above, long since weathered out, and more completely isolated by longer exposure to atmospheric influences?

But yet another proof. The extensive plateau, marked, in the section we gave in our last, as "the Sage Plains," has been eroded in thick strata of cretaceous shales. These shales represent muddy portions of the Cretaceous sea, which were thickly tenanted by a peculiarly formed characteristic oyster, known to geologists under the name of *gryphæa*. Like other oyster-shells, these are massive and heavy; and Dr. Newbery tells us that, on the Sage plains, these shells occur, strewn over the ground in such numbers that thousands of large ships might be filled with them; these have undoubtedly all fallen from the hundreds of feet of shale that have been removed, the heavy shells resting on the surface, while the lighter particles of earthy matter have been swept away. Now, had breaker action destroyed these beds, these shells would have been ground and reground, and their fragments would have been scattered far and wide; and they thus, in their present disposition, indubitably attest the more gentle nature of the agent that has accomplished this great work of eating away these 1,600 feet of shales.

It is worth our while to cast another glance at the total amount of this erosion. Invert the section we gave in our last, and the empty space between the dotted line and the line describing the present surface will represent the mass of material that has been removed, as a section of a mountain range; a range 6,000 feet in hight, and varying in width from 1 to 180 miles, and with a length of several hundred miles Nor, in reality, does this do full justice to the case; for, to give at all an approximate idea of all this denudation, we ought to have drawn the dotted line from peak to peak, and then continued it over the valleys east and west of the Rocky Mountains and the Wasatch range, but we feared to confuse the reader. And all this work has been accomplished since the close of the cretaceous epoch!

Whither has all this material, thus removed, gone? To form the more recent strata around the Gulf of California, and to furnish material for new strips of land, to be sooner or later upheaved and added to the western edge of our continent; and this appropriately, brings us to the consideration in our next, of the mode in which such materials are re-arranged into new strata.

But we would draw attention to one more question, to which Dr. Newbery gives prominence, and which is well worth remembering, when some tell you that, in our oldest rocks, we see the commencement of geological history.

The materials eroded, as herein described, vast as they are, are as nothing to the vast total of deposits of which they once formed a part. In the Colorado region, we have sections of upwards of 6,000 feet of strata, from some of the oldest, as the silurian, up to the last of the secondary; and these deposits extend between the Colorado and the Mississippi, in a belt 1,200 miles in width, and of "great, though yet unmeasured, extension north and south."

It would have required, according to our guide, all of an island 300 miles in diameter, and at least 6,000 feet high; or, what is more probable, a continent of six times that area, and 1,000 feet high, "to furnish all the sediment that forms the stratified rocks of only that portion of this great central plateau that immediately borders the Colorado."

Where, then, was the continent whose ruin furnished the materials for the whole of the great belt? Do you tell me that fragments of it remain in the north, in Canada, and the Adirondack Mountains? Granted! but these themselves are sediments, altered, it is true, by the vicissitudes of their vast history; and whence came they? Dr. Newbery infers the existence "of broad and rapid rivers, which flowed from the mountains and through the fertile valleys of a primeval Atlantis," bearing down the sediments of our Paleozoic rocks; but what shall we call that utterly lost land, whose destruction must have accompanied the formation of the very oldest ruins, the foundations of this same Atlantis that attest the age of the world? Verily, geology might be termed "man's nescience of creation," wherein he best learns how little he can know.

Paper Wheels.

The Pullman Car Company is running a car, on the Chicago and North-western road, with what are called "paper wheels." The wheels have steel tires and cast-iron hubs, and the paper is introduced in the way of filling under the tires, for the purpose of deadening sound and diminishing the force of concussion. According to the *National Car Builder* the wheels have been running since July last under this particular car, and had been in use some four months previously.

The paper device is said to be superior to wood for the purpose designed, being stronger and lighter, and free from knots, grain, or sap. It does not expand or contract, but remains in the condition in which it is put in the wheels without liability of change. It is cheaper than wood, and can be molded into any form by pressure, and is made fire and waterproof by asbestos. It is, as a substitute for wood, adapted to a variety of uses, especially in the way of ornamentation.

SCIENTIFIC INTELLIGENCE.

A NEW PREPARATION OF THE SULPHOCYANIDE OF AMMONIUM.

A Dutch chemist, Van Zouteveen, has made the important discovery that by passing dry ammoniacal gas through the bisulphide of carbon, a brick-red precipitate forms, which upon solution in water and boiling down to half its original volume, yields sulphocyanide of ammonium. The reaction is a valuable one, as it points out a possible way of making the sulphocyanides in an economical manner. Our readers will recall the uses of this class of salts in testing for iron also in photography, and more recently in the artificial production of cold.

RECOVERY OF IODINE FROM RESIDUES.

When bromine and chlorine are present with the iodine in residues, it is difficult to separate them and to recover the latter; and various methods have been resorted to for the purpose. Beilstein recommends the following: The solution containing the iodine is rendered acid by sulphuric acid; and nitrous acid gas, made from one part starch and six parts crude nitric acid, is passed through it, and the iodine thus precipitated is separated by means of a Bunsen filter. It is then thoroughly washed by cold water, and dried over sulphuric acid. If bromine be in the filtrate, warm the liquid to expel any iodine that may have been dissolved in it, and distil with black oxide of manganese and sulphuric acid. If chlorine be present, it will go off with the bromine. It is said that a considerable portion of the nitrous acid can be reclaimed, after it has served its purpose.

A NEW OPIUM MEDICINE.

We mentioned, some time ago, the discovery of a powerful emetic called apomorphine; we now have to record the preparation of a somewhat analagous base, to which it is proposed to give the name of *apocodein*. When chloride of codein is heated for 15 minutes to 338°—348° Fah., with an excess of a concentrated solution of chloride of zinc, water is eliminated, and apocodein is formed. It cannot be obtained in a crystalline form, but in other respects closely resembles apomorphine, and is more permanent and more easily made than the morphine compound. It is likely to prove a valuable emetic.

NARROW ESCAPE FROM SUFFOCATION BY CHLORINE.

The steamship *England*, which cleared from Queenstown on January 12th, with 200 passengers on board, was obliged to put back to harbor in consequence of the breaking, during a heavy storm, of a number of barrels of bleaching powder in the hold. The heavy sea washed into the ship, and thus liberated the chlorine gas in such quantities as to nearly suffocate all on board. Attempts were made to remove the powder, but it was soon found to be impossible for any one to live in the hold long enough to put on the grappling hooks, and the captain decided to put back to port as fast as he could sail. There are few gases so suffocating as chlorine, and in case of accident to a large quantity of the bleaching powder, the lives of all on board ship would be greatly imperiled. We have frequently observed the fumes of chlorine, while passing through some of the lower business streets of the city, and have been surprised at the endurance of persons employed in certain localities. There is too much carelessness in handling an article that is capable of so much mischief.

RECENT DECISIONS AT THE PATENT OFFICE.

The Examiners-in-Chief at the Patent Office make the following report to the Acting Commissioner of Patents, in relation to the application for an extension of a patent to John Worsley, granted December 23, 1856, on the use of corn husks in manufacturing rolls for calenders, washing machines, etc.

"The invention at most was but the substitution of one known material for another, or others. It is admitted that cotton, paper, wood, rags, or cloth, etc., had formerly been used for precisely the same purpose, and probably a list might be made out, of a hundred other materials, embracing grasses, leaves, mosses, barks, etc., etc., which would be the full equivalents of husks for the purpose named. It is true that when one discovers some quality in a particular material, peculiarly adapting it to some important use not thought of before, whereby art is improved, and the public benefited, he should be rewarded with the monopoly of its use for a proper time. But this class of discovery is generally among the least meritorious.

"Artisans and manufacturers should not be improperly trammeled, but left as far as possible, consistent with the clear rights of inventors, free in the choice of material wherewith to ply their trades and carry on their occupations. To allow patents for each supposed step of improvement, where it consisted in the mere use of skill and good judgment in the selection of material, would embarrass rather than promote manufactures and arts.

"But in the case before us, the Hon. Commissioner of Patents, Judge Mason, for whose opinion we have great respect, decided the matter to be patentable; but added, as a sort of solace to his own conscience, 'If it be a valueless invention, a patent can harm no one; if it be valuable, it is patentable. The applicant has had an opportunity of testing its value by going with it before the public for fourteen years, and though he swears that he has used extraordinary diligence in introducing it, yet a less number of his 'superior and cheaper' rolls were demanded in the last than in the second and fourth years of his patent.

"He states that he has made a profit of $5,975 in manufacturing his rolls, from which he deducts $3,500 as about the amount expended in 'traveling expenses, advertising, circulars, and incidental expenses in introducing the invention.'

"This is too indefinite to be admitted as a set-off, and we must conclude that he has been sufficiently rewarded for having discovered that husks are suitable for the purposes claimed.

"The claim that the invention is of any value to the public is only supported by two general affidavits of persons using the rolls, and think them superior to any in use, though what knowledge they possess in regard to other rolls does not appear.

"There is no proper detailed statement, or any other proper showing of the value of the patent, and we think the extension should be refused.

"R. L. B. CLARKE,
"S. H. HODGES } Examiners-in-Chief.
"J. M. THACHER,

DECISION.

The reasons assigned by the examiners-in-chief for the adverse report upon the merits of the present application are deemed good, and the extension is accordingly refused.

DUNCAN, Acting Commissioner.

The Acting Commissioner makes the following report, in relation to an application for the extension of letters patent, of John B. Read, for an improved projectile for ordnance, granted October 28, 1856.

The invention to which this application relates is an expanding wrought-iron sabot for elongated shot and shell Various modes are suggested by which the hollow cylinder constituting the sabot may be attached to the projectile, but the preferred mode is by imbedding it more or less in the cas.