currents which, by friction in a contrary direction, augment the loss. Captain Ericsson observes that it would be futile to attempt a demonstration to prove that, owing to solar influence, the friction and other resistance called forth by the currents of air and vapor is inadequate to restore the loss of *vis viva* sustained by the earth in consequence of the increase of rotary velocity which it must impart to the water of rivers running towards the equator. Nor would it be less futile to attempt a demonstration showing that the friction and resistance produced by such currents passing over the Mississippi basin from west to east is sufficient to restore the expended force of 35,000,000 of horse-power exerted in an opposite direction.

As an example of rivers running in an opposite direction, the author makes choice of the Lena, which falls into the Arctic Ocean. In this case he shows that the force exerted in the direction of the earth's rotation very nearly balances the retardation caused by the Mississippi. But the waters of the Lena, unlike the southern river, do not directly enter into a heated caldron, to be at once converted into vapor. The previously chilled masses of the Lena flow into the great polar refrigerator, and from thence are transferred to the evaporator in the equatorial regions. This transfer cannot be effected without a considerable retreat from the earth's axis—so considerable, indeed, that before the required evaporation takes place the waters are further from that axis than their source at the foot of the Jablonoi Mountains. There the imparted *vis viva* is more than neutralized. The author then proceeded to consider that portion of the subject which relates to the recovery of *vis viva* resulting from the lowering of the earth's surface by the abrasion caused by rain, and showed that the approach of the abraded matter towards the center of the earth scarcely recovers 1-41,000,000th part of the energy parted with during the change of position in the direction of the equator. Captain Ericsson also urged as a cause of retardation the erection of towns and other edifices on the earth. He considers that the change of position of the enormous masses of stone and earth in the form of bricks, together with the coal and other minerals from below the surface of the earth to some hight above it, cannot but be the cause of considerable retardation.

He observed, in conclusion, that "no reasonable doubt can be entertained that the earth sustains a loss of *vis viva* of 39,894,658 foot-pounds every second. Multiply this sum by 86,400 seconds, we learn that every succeeding day marks a diminution of the earth's *vis viva* of 3,446,898,451,200 foot-pounds, in consequence of the change of position of the abraded matter carried towards the equator."

POTASH FROM A NEW SOURCE.---THE STASSFURT MINES.

The alkaline salt potash is so important in agriculture and the arts, that we think a full explanation of the method of obtaining it in large quantities from a new source will be interesting to the readers of the *Journal*. Potash, as is well known, was formerly the cheapest of the alkalies, but it is now the dearest; and in every possible case its place has been filled by one of the other alkalies, usually soda. The principal, and, for a long time, the only source of potash, has been the ashes of plants; but within a short time, potash salts have been discovered in vast amounts at the salt mines of Stassfurt, Prussia. Their value was not at first recognized, but did not long escape the notice of the very eminent chemist, Henrich Rose, who pointed out their importance. At the present time they are extensively worked. They are found overlying the salt beds in layers of various thicknesses, and are associated with salts of lime and magnesia. The principal forms in which they occur are known as mineral species under the names of polyhalite, sylvite, carnallite and kainite; accompanying them are found rock-salt, anhydrite, kieserite, tachydrite, and boracite. Polyhalite is a hydrated sulphate of potash, lime, and magnesia; sylvite is chloride of potassium; carnallite, a double chloride of magnesium and potassium; and kainite, a compound of hydrated chloride of potassium and sulphate of magnesia. Of the associated minerals, it need hardly be said that anhydrite is the anhydrous form of sulphate of lime; kieserite is a hydrated sulphate of magnesia; tachydrite, a double chloride of calcium and magnesium; and boracite, a borate of magnesia

Carnallite is the material worked for the extraction of potash. It is found mixed with rock-salt, kieserite, and small quantities of the other species mentioned above. As the mineral comes from the mine, it contains about one-sixth its weight of the potassium salt (the chloride) the rest being rock-salt and the chloride of magnesium, which is combined with the potassium salt as carnallite. In the process used to get the chloride of potassium in a reasonable degree of purity, advantage is taken of the different degrees of solubility of the various substances with which it is associated. The chlorides of potassium and magnesium are much more soluble than the chloride of sodium; so by treating the salt mass with an insufficient quantity of hot water, the two first-named salts are dissolved, while the most of the common salt is left behind undissolved. Chloride of magnesium is very soluble in cold water, and common salt is equally soluble in hot and cold water, so that both these remain in solution, while the potassium salt crystallizes out in a state of tolerable purity, about 80 or 90 per cent of chloride.

This product is good enough for commercial purposes and is used for making other salts. By further concentration of the mother liquor, the original salt, carnallite, deposits, and can be again worked over, while chloride of magnesium only is left in the solution. From the chloride of potassium the sulphate can be prepared by treatment with sulphuric acid; and from the sulphate the carbonated and caustic alkali, by Leblanc's process. This method, however, requires the use of a material (the acid), which is obtainable at the mines only at a considerable expense. It was therefore desirable to employ, if possible, the natural sulphate of magnesia, which is very plentiful at Stassfurt. After a great deal of experimenting, this was finally accomplished in a very ingenious manner by the formation of a double sulphate of potash and magnesia. This is done by simply adding sulphate of magnesia to the solution of chloride of potassium, a double decomposition taking place, with the production of sulphate of potash and chloride of magnesium. But the sulphate of magnesia, as mined, is mixed with common salt, from which it must first be freed.

The mixture of rock-salt and sulphate of magnesia is placed in water. The magnesia sulphate is but slightly soluble in the brine which is soon formed and collects at the bottom of the vessel, from which it is removed and used to form the double salt above mentioned. By careful treatment of the double salt, a part of the sulphate of magnesia may be got rid of, and from the residue carbonate of potash produced by Leblanc's process. Another mode of treating this double salt is by a solution of chloride of potassium, and then, by a series of crystallizations, are obtained pure sulphate of potash, the double sulphate again, and a double chloride of potassium and magnesium (carnallite.) The sulphate of potash is of course fit for the market, but the other salts are again worked over, in the ways previously described.

As already stated, the deposits at Stassfurt are of enormous extent, and from them potash and its salts are now produced in such great quantities that their cost has been very materially lessened, so that even in agriculture they can be advantageously used. The processes employed for their extraction seem simple, and indeed are not very complex, yet are of a very interesting character, must be carried on with care and judgment, and require skill in manipulation. Separations of the kind we have been describing, are only possible on a large scale. One of the most important points connected with them is the manner in which the various mother liquors are brought into use. For instance, if the raw mass of rock-salt, chloride of potassium, and magnesia salts, instead of being treated with pure water, is acted upon by a mother liquor, already saturated with the two former, it is evident that almost all of the magnesia compounds will be dissolved, leaving the alkaline chlorides behind. Again, in the process given above, by which pure sulphate of potash is obtained, it will be noticed that at the same time other salts are formed, only to be worked over again. The final mother liquors contain very little besides magnesia salts, and are utilized to some extent as a source of magnesia.—*Boston Journal of Chemistry.*

Separating Animal from Vegetable Fiber.

In mixed fabrics or fabrics composed partly of animal and partly of vegetable fibers, the separation of animal fibers, such as, for example, wool, hair, or silk, from the vegetable fibers, such as cotton, flax, or jute, is a process necessary for certain purposes. The plan hitherto adopted for the purpose of separating these fibers has been to treat the material to be operated upon with acids. This is, however, objectionable, as the animal fiber is by their action rotted, and thereby loses its milling and felting properties. In a recent patent, Mr. James Stuart, of 40 Ropemakers' Fields, Limehouse, dispenses with these acids, and substitutes neutral substances. In this way rags, carpet cuttings, old carpet, and other waste material of mixed fibers may be utilized to a greater extent than has hitherto been found practicable, and, as the separated animal fiber retains in most cases its color, it can oftentimes be worked up again into articles for use without the necessity of its being re-dyed.

His invention consists in subjecting rags, carpet cuttings, old carpet, or other material of animal and vegetable fiber intermixed to the action of chlorides of the metals or sulphates of the oxides of the metals, preferring, however, to use as the active agent the chloride of aluminum. In thus treating the material, certain chemical reactions take place whereby the vegetable fiber is decomposed and the animal fiber is recovered uninjured either in substance or in color. It is then in a fit state to be re-manufactured without re-carding, spinning, dyeing, or other operations that have hitherto been necessitated.

In practice, Mr. Stuart first makes a solution of ingredients in the following proportions: In 100 gallons of hot water dissolve 100 lbs. of the suphate of alumina of commerce; then add 50 lbs. of chloride of sodium: when this last-named ingredient is added, a reaction takes place: sulphate of soda is formed, and also chloride of aluminum. With the solution thus made the material to be treated is saturated. It is then drained so as to allow the excess of the solution to pass therefrom; or the material may be slightly wrung or pressed for the same purpose. The material is next dried and afterwards exposed to a steady temperature of 200° Fah. During the time of this exposure, the chloride of aluminum decomposes, and the resulting volatile products, as they pass off, act upon the vegetable fiber, rotting them, but leaving the animal fiber uninjured. The material treated is then scribbled, and the vegetable matter separates in the form of dust. This treatment refers more particularly to rags of light mixed fabrics.

When treating heavier or denser material, such as carpet cuttings or old carpet, the solution of chloride of aluminum is of greater strength. In 100 gallons of water dissolve 150 lbs. in weight of sulphate of alumina and 75 lbs. of chloride of sodium, and then proceed in the manner before described.

In some cases, it is found more convenient to treat the material by boiling than by heating in drying rooms. Mr. Stuart then proceeds in the following manner: He makes a solution of sulphate of alumina by dissolving 100 lbs. of that substance in 100 gallons of water, and with this solution he saturates the material. It is then drained, and afterwards placed in a boiling saturated solution of common salt. In this solution the material is kept boiling until the vegetable fiber is decomposed or rotted; the material is then well washed and dried, and scribbled or carded.—*Mechanics' Magazine.*

The Danford Steam Generator.

The Joliet, Ill., *Republican*, in speaking of the above generator, says:

Had it been in use at the Indianapolis State Fair, the columns of the press all over the country would have been filled with pleasanter matter for perusal than the heart-rending tales of that sad disaster.

Our investigations of it were of such a satisfactory character that we have already purchased a generator and engine, and are this week placing it in our establishment to run our presses, and we do not hesitate to recommend it to every one who uses steam power as being absolutely safe.

The novelty of the Danford Steam Generator consists in its being a hollow wrought iron cylinder of 5-8th inch thickness, the side and heads welded together. This is placed in a jacket or furnace lined with fire brick; the back wall of the furnace is so constructed as to throw the heat and smoke around the cylinder or generator, which is made by a simple process to revolve, creating a draft, helping to consume the gases and smoke, and what is more important, equalizes the heat on the generator, making the iron to last much longer. We have been shown iron subject to this test for twelve months, after which it was softer and better than the day it was put in. The fire to heat the generator and make the steam is placed in the furnace, immediately under it, playing on the bottom of the circle as it revolves. By putting a three-fourth inch water pipe through the generator from end to end, plugging up the end from the engine and perforating it with 30 or 40 small holes the size of a pin head, you have the machine ready for use. To make steam by this invention is so simple, and still so effective, that it wins you as a friend at once. To make a fire in the furnace and heat the empty generator is but the work of a very few moments, after which you work a temporary handle attached to the pump, and by a few strokes you raise the pressure to 100 pounds, after which you are ready to operate with your engine, which makes the necessary steam to run it and keep up the reserve at every revolution by throwing a sufficient amount of water through the holes in the water pipe in the condition of spray, which is instantly flashed into steam, thereby keeping a regular pressure on the generator.

The generator or cylinder never contains any water to be suddenly expanded into a large body of steam, and is, therefore, to our judgment and others' experience, absolutely non-explosive, and as the steam made is superheated, almost any desired pressure can be obtained and used with safety. To our knowledge steam by this machine has been made and used up to 300 pounds pressure to the square inch without fear or danger.

We are glad to learn from Mr. George P. Jones, Secretary of the Company at Chicago, Ill., that this improvement, patented in this country and in Europe through the Scientific American Patent Agency, "is now a practical success."

Something New in Working Plaster of Paris.

We find the following in the *Druggists' Circular*:

"It is a well-known fact that powdered gypsum, when freed by calcination of its water of crystallization, regains to a great extent its original hardness when incorporated with water enough to form a stiff paste. In order to attain this end, there is at least thirty-three per cent of water required, wherefrom twenty-two per cent is withheld as water of crystallization. The rest evaporates, and thus brings about the porosity of the hardened gypsum. In working up a small quantity of gypsum, one has only a few minutes' time for using the paste for molding or puttying, as it soon becomes hard. With larger quantities, in which case the making of the paste requires a longer time, the mass hardens, sometimes, during the operation of dressing. According to Mr. Puscher, of Nuremburg, this inconvenience may be got rid of by mixing with the dry powdered gypsum from two to four per cent of finely pulverized althea-root, (marsh mallow) and kneading the intimate mixture to a paste with forty per cent of water. In consequence of the great amount of pectin which is contained in the althea-root, and which in fact amounts to about fifty per cent, a mass similar to fat clay is obtained. This mixture begins to harden only after a lapse of one hour's time. Moreover, when dry it may be filed, cut, twined, bored, and thus become of use in the making of domino-stones, dies, brooches, snuff-boxes, and a variety of other things of a similar character. Eight per cent of althea-root, when mixed with pulverized gypsum, retards the hardening for a still longer time, but increases the tenacity of the mass. The latter may be rolled out on window-glass into thin sheets, which never crack in drying, may be easily detached from the glass, and take on a polish readily upon rubbing them. This material, if incorporated with mineral or other paints, and properly kneaded, gives very fine imitations of marble. They bear coloring also when dry, and can then be made water-proof by polishing and varnishing. The artisan, in the practice of his trade, will probably find it to his advantage to make use of this prepared gypsum in place of that usually employed by him; the manufacturer of frames need have no fear that his wares will crack if he uses a mixture of the above-indicated composition; moreover, the chemist and chemical manufacturer will find that the same does excellent service in luting vessels of every kind. The exact proportion of water to be made use of cannot be given exactly, as it varies within a few per cent, according to the fineness and purity of the gypsum employed. The above-mentioned althea-root need not be of the very best quality, the ordinary kind serving the purpose perhaps quite as well."

Improved Wagon Tongue.

The object of this invention is to furnish a spring support for wagon tongues. It is without doubt much superior to the old method; avoiding all bumping, and adding to the comfort of horses, driver, and passengers.

A, in the accompanying engraving of this invention, is a piece bolted or screwed to the under side of the tongue, to which is pivoted the rod, B, extending back beneath the tongue to a cylindrical rubber spring, D. A collar, C, with nut running upon the rod, B, serves to adjust the support to hold the tongue at the proper hight. The rod, B, passes through the center of the rubber spring and through an eye in the center of the oscillating cross head, E. This oscillating cross-head permits all the necessary oscillation of the tongue and the support without allowing the tongue to hammer upon the neck-yoke, or hold-back supports, thus relieving the necks of the horses. The oscillating cross-head is pivoted to curved supporting bars, F.

These are all the parts of the device which seems simple and serviceable.

Patented through the Scientific American Patent Agency, Sept. 21, 1869, by George Alexander, of Romney, Ind., who may be addressed for exclusive rights to manufacture in the United States.

Suspension Bridges in China.

The construction of suspension bridges has been thought a signal achievement by the Western nations, but in China they are of great antiquity, and many still exist. They are made of iron chains, and their mode of construction resembles, in the main, that used in the Western countries. They are, however, generally confined to the mountainous regions, and span rivers whose navigation is interrupted. There is one over a river in the Yunnan province that is said to have been first built by one famous Chu-koh-hand more than two thousand years ago; and there is a second and much larger one in the Kweichow province, spanning the river Pei. This latter was built during the Ming dynasty. It consists of many chains stretched across the river and fastened firmly in the stone on either bank; from natural elevations above, other chains depend, and are made fast to the span, and there are also chains fastened to it from below, the object being to make the bridge as firm as possible. A plank floor is laid on this bed of chains: it is repaired at regular intervals of from three to five years at the imperial expense. The span of this bridge is said to be several hundred feet.

"Ventilate your Sewers! Do not Trap!"

These words form the close of a very valuable address on the influence of sewer vapor on health, delivered by Dr. Carpenter, of Croydon, before the Social Science Association, and we think the substance of it deserves the widest circulation.

It is within the memory of this generation that typhoid fever has been distinguished from other fevers, and has been traced to sewage. The earliest efforts of sanitarians were directed to the abolition of those collections of impurity in cesspools which formerly poisoned the earth, air, and water for our forefathers; and with the introduction of water-closets and of tubular drainage, it was hoped that typhoid fever, at least, might be exterminated. Nevertheless, it did recur again and again, as at Croydon; because, says Dr. Carpenter:

"In the early sanitary works which were carried out under the supervision and with the approval of the General Board of Health, and under the authority of the Public Health Act of 1848, the consequences of sewer gas not being foreseen were not guarded against; no provisions were made to prevent its ascent into the house, or for exit into the open air before it could reach the inside of the dwelling. The rapid spread of luxurious habits among the people, the introduction of low fireplaces and register stoves, and the method adopted to exclude drafts by having exceedingly close-fitting windows and doors, prevented the easy exit, and its baneful influence became manifest, often without the real cause being at that time at all suspected. It often happens that the easiest way for air to enter the house is by the sewer."

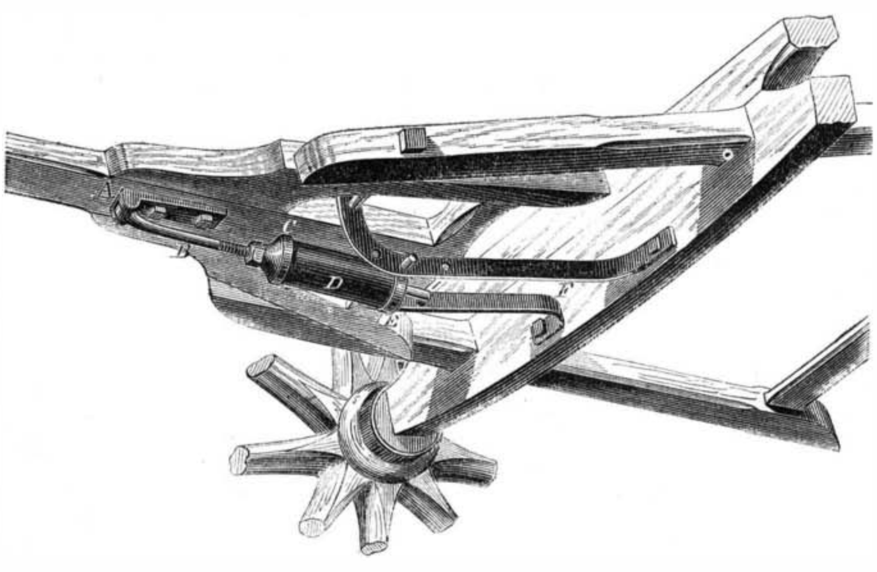
Then, with this state of things, "fever would recur; fever always the same in type, 'the enteric or typhoid' form, with rose-colored spots, often with abdominal complications, and always in those houses nearest to the top of the sewer (perhaps I should say generally), and farthest from the outfall."

Nor is fever the only consequence of the entry of sewer gas into dwelling houses. "Many other disorders of the system," says Dr. Carpenter, "have been directly traced to its influence—thus diarrhea; dyspepsia in all its forms; palpitation of the heart; various forms of asthma (indeed, it may help to explain some of the vagaries of this curious disease); convulsions, especially in teething infants; headaches, both persistent and intermittent. The evils which sometimes attend or follow upon the puerperal state, as milk fever, abscesses in the breast, and phlegmasia dolens or white leg, are frequently caused by it. I believe that these latter cases have been so associated, from observing their frequent occurrence in new houses before the plan now adopted in our district was carried out."

How, then, is this enemy so subtile and deadly to be dealt with? Most sanitarians have but one reply—put efficient traps and shut out the gas.

Trapping alone, Dr. Carpenter concludes, is delusive; for not only may the trap become dry, but the water that seals it absorbs gas from the sewer, and gives it off into the house, and, if there be any pressure, the trap is forced. Neither is it of any use to say that sewers ought to be self-cleansing, that they ought to form no deposit and give off no gas. What ought to be, and what actually is in this wicked world are two very different things.

The real plan is to ventilate every sewer abundantly; to have a rapid and constant circulation of air through it; so that the sewer gas may be diluted and decomposed as soon as formed. In order to effect this, in the first place every house drain ought to be ventilated by carrying up the soil pipe to the highest available point, so that it be far enough removed

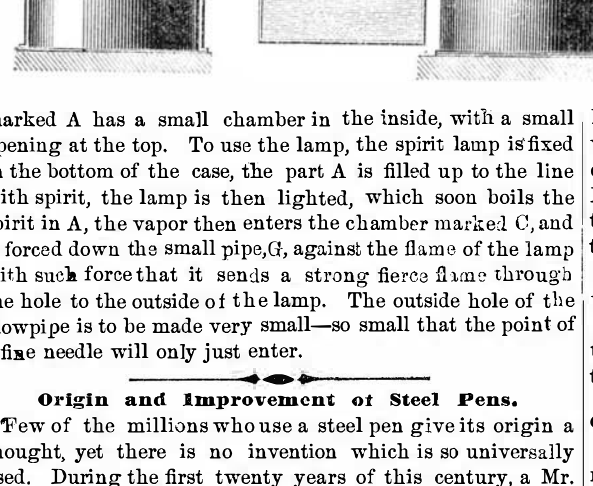


ALEXANDER'S IMPROVED WAGON TONGUE.

from windows and chimneys. Other ventilating shafts, straight and perpendicular, ought to be put to every pipe requiring a trap, so as to protect the trap from the effects of pressure. Then, instead of closing the apertures into the street sewers, they ought to be as many and as open as possible. Stagnation in sewers, whether of solid, or liquid, or gas, must be avoided, and, considering that the sewers have a higher temperature than the air above, there is sure to be a rapid circulation through them if openings enough be provided; and public safety may be consulted by placing charcoal ventilators in the line of the up currents.—*New York Medical Journal.*

A USEFUL BRAZING LAMP.

A good form of brazing lamp which any tinman can construct, is shown in the accompanying engraving. It is made of copper, with the exception of the screws. The outside case is a cylinder, D, about four and a half inches high, and two and a half inches diameter, with a hole, E, as shown in the sketch; it is without ends, so that the receiver, marked A, may slide in the top, and the lamp, marked B, fit in the lower part. The parts fit together, as shown in section. The part



marked A has a small chamber in the inside, with a small opening at the top. To use the lamp, the spirit lamp is fixed in the bottom of the case, the part A is filled up to the line with spirit, the lamp is then lighted, which soon boils the spirit in A, the vapor then enters the chamber marked C, and is forced down the small pipe, G, against the flame of the lamp with such force that it sends a strong fierce flame through the hole to the outside of the lamp. The outside hole of the blowpipe is to be made very small—so small that the point of a fine needle will only just enter.

Origin and Improvement of Steel Pens.

Few of the millions who use a steel pen give its origin a thought, yet there is no invention which is so universally used. During the first twenty years of this century, a Mr. James Perry was the proprietor and conductor of a popular school near London. To save himself from the drudgery of making and mending pens for scrawling urchins, he invented, in the year 1820, in imitation of the ancient *stylus*, a pen made of steel; and after many unsuccessful attempts, so far succeeded as to substitute it for the quill in the school room.

Mr. Perry, although a schoolmaster, was a keen business man. He followed up this success vigorously, and it ended in the production of the celebrated Perryan pen, known and used to this day. Mr. Perry, even in those early days, knew the value of advertising. He gave his invention a wide circulation, and in 1824, only four years after the first introduction of steel pens in Perry's school room, Robert Griffin (who is still alive) says: "During this year I wrote with pens made of steel, manufactured under the direction of Mr. James Perry—a pen that lasted about eight or nine weeks, writing about eight hours a day." In 1825 Mr. Perry employed fifty operators in London to manufacture steel pens; but although he was the inventor of the steel pen, he was not able to make them popular. That was left for a very remarkable man, namely, the still living philanthropist, Josiah Mason.

Mr. Mason, who endowed an orphan asylum a few months ago in Endenton, near Birmingham, England, with £250,000, was in his younger days a carpet weaver in Kidderminster. He, however, left that occupation and went to Birmingham, where he sold shoe-laces, pins, needles, etc., in the market place. One day he saw the Perryan pen exposed in a shop window at the moderate price of sixpence each; he bought three of them, determined to see whether he could not imitate them, and soon produced a pen lighter and better than the original. Far from taking a mean advantage in selling them to customers (Perry being then, 1830, the only maker), Mr Mason sent three dozens of his pens, mounted upon cards, to Perry, in London, offering to make them at fifteen shillings a gross. Mr. Perry, who seems to have been a liberal and shrewd business man, soon saw that a genius had got hold of the invention who could make great progress in the production. He at once accepted Mr. Mason's offer, made him small advances of money, and only stipulated that Mason should furnish him the sole supply.

Mason then began to give his whole mind to the subject. His first effort was to get the steel rolled to the proper thinness, in which alone at that time the difficulty lay. Then the machinist was called in to aid by a regular cut form what had before been shaped by hand. When Mr. Perry saw that Mason could turn out more pens in Birmingham in a day than he himself could do, with all his hands in London in a week, he thought it time to propose a partnership to Mason, which was accepted, and since Mr. Perry's death the Perryan pen is manufactured and owned by Mr. Mason, in Birmingham.

Hay Fever caused by Vibriones.

Helmholz says in *Virchow's Archives*, that since 1847, he has been attacked every year, at some time between May 20th and the end of June, with a catarrh of the upper air passages. These attacks increase rapidly in severity; violent sneezing comes on, with secretion of a thin, very irritating fluid; in a few hours there is a painful inflammation of the nose, both externally and internally; then fever, violent headache, and great prostration. This train of symptoms is sure to follow if he is exposed to the sun and heat, and is equally certain to disappear in a short time if he withdraws himself from such exposure. At the approach of cold weather these catarrhs cease. He has otherwise very little tendency to catarrhs or colds.

For five years past, at the season indicated, and only then, he has regularly succeeded in finding vibrios in his nasal secretions. They are only discernible with the immersion lense of a very good Hartnak's. The single joints, commonly isolated, are characterized by containing four granules in a row; each two granules being more closely connected, pairwise, and the combined length equaling 0·004mm. The joints are also found united in rows, or in series of branches. As they are seen only in the secretion which is expelled by a violent sneeze and not in that which trickles gradually forth, he concludes that they are probably situated in the adjoining cavities and recesses of the nose.

On reading Binz's account of the poisonous effect of quinine upon infusoria, he determined to try it in his own case. He took a saturated neutral solution of quiniæ sulph. in water =1 : 740. This excites a moderate sensation of burning in the nasal mucous membrane. Lying upon his back, he dropped 4 centim. of the solution, by a pencil, into each nostril; moving his head meanwhile in all directions, to bring the fluid thoroughly into contact with the parts, until he felt it reach the œsophagus. Relief was immediate. He was able, for some hours, freely to expose himself to the heat of the sun. Three applications a day sufficed to keep him free from the catarrh, under circumstances the most unfavorable. The vibriones, also, were no longer to be found.

The experiment was made in 1867; and was repeated at the first recurrence of the attack in May, 1868, preventing the further development of the attack for that year.

Graphic Sketch of Col. Drake, the Oil Pioneer.

About a mile below Titusville, Pa., the first oil well derrick that was ever built, in this or any other country, is still to be seen. In the light that petroleum has thrown upon the world since, it is sad to reflect that the man who first bored for oil, and, by his pluck and perseverance, not only flooded a community with sudden riches, but increased the wealth of the world, died as a common pauper.

Colonel E. L. Drake first made his appearance here in 1857. Previous to that time he had been a conductor on a railroad in Connecticut. He came to Oil Creek to obtain for another person an acknowledgment of a deed from one Squire Trowbridge, living in Cherrytree Township, Venango County. Calling casually at the office of Brewer & Watson, in Titusville, he there found a bottle of crude oil, and his curiosity