sion brought in close proximity to the poles of the magnets, alternately approaching to and receding from them, with great rapidity. This causes a succession of almost instantaneous electrical impulses to be given to the wires coiled around the bars. Connecting this machine with the charcoal points and revolving it at such a speed as to make the flow almost continuous, for the light only shines while the current is passing, a steady light will be produced.

It has been found, by experiment, that if a speed sufficient to give 200 electrical impulses per second be given to the machine, the eye no longer takes cognizance of the intervals, and an uninterrupted light is the result.

A curious example of the correlation of forces is shown in the working of this machine. The cylinder, which is hung in its bearings so delicately that it would seem possible for a child to revolve it with ease, really requires a two horse power engine, owing to certain effects produced by the action of the magnets in connection with the coils. This force expended is represented in the light produced; the machine converting force into electricity, and electricity into light; as in the case of the galvanic battery, the force resulting from the decomposition of zinc is the producer of the light.

The uses to which this light may be advantageously applied are numerous. Its peculiar penetrating power renders it unrivalled for light houses and signal lights for vessels. Let the darkness be so great that it "can be felt," its light pierces it like a great silvery needle, and falls like a ray of hope upon the seething ocean, which, but for its warning, might have been the watching sailor's grave.

It has been used with success for illuminating mines. During the siege of Paris, the Prussians were much annoyed by one of these lights, which the Parisians had constructed and placed upon Fort Mont Valérien, and which effectively prevented any hostile movement being made by the Prussians under the cover of the night.

For stage effect, illuminating halls, streets, or other public places, and for microscopic or magic lantern exhibitions, it may be used.

The application of the electric system for illuminating Bergen Tunnel, through which the Erie Railroad and Delaware and Lackawanna Railroad traverse, we believe could easily be accomplished. Its adoption would relieve the thousands of passengers, which are carried through this tunnel daily, of the apprehension of accident which is irresistible to most persons as they enter the dark and cheerless cavern.

In fact, its uses are so numerous, and its effects so brilliant, that it is a wonder that it has not been more universally adopted.

SCIENTIFIC INTELLIGENCE.

OCCURRENCE OF AMBER IN SICILY.

It is remarkable that the Romans, who set great value upon amber, and obtained it at great expense and trouble from the Baltic, make no mention of the occurrence of this fossil in Italy. The probability is that they never discovered the locality nearer home. The first notice of the Sicily deposit was in 1808. The amber is found in clay, brown coal-like formation, and gray sandstone, referred by Hoffmann to the chalk period. In color and general appearance it closely resembles the products of the Baltic workings, the chief difference being in the species of insects found imbedded in the gum. These insects belong to the ancient inhabitants of the earth, and their race is now extinct. Well preserved leaves of plants, resembling the ferns of the coal period, have been found in the Sicilian amber. Many thousand specimens have been obtained from Catanea and Girgenti, two places famous for their mines of sulphur. A resident of Königsberg, Germany, who was recently in New York, informed us that the search for amber was now conducted upon more scientific principles, and the yield was increased accordingly. The mines are the monopoly of the governments, and the privilege of working them is leased to responsible companies. In this way, the industry assumes a business shape, and dealers in amber know what to depend upon. It is not likely that in our older geological formations we shall discover the fossil gum, but a search for it in more recent rocks may some day bring it to light. Its occurrence in a volcanic region like Sicily was unexpected, and hence the delay in finding it.

CHLOROFORM USED IN THIS COUNTRY.

Dr. Simpson, of Edinburgh, who first discovered the anæsthetic properties of chloroform, immediately wrote an account of his experiments to Dr. Charles T. Jackson, of Boston, who at once brought the letter into his laboratory, where a number of pupils were at work, and requested one of them to prepare some of it for the purpose of repeating the experiments. This was in December, 1847. One of the students prepared a small quantity, and it was administered to him on the 30th of December, 1847, by Dr. Jackson and one or two other physicians who were invited to witness the effects of the new anæsthetic. There was probably not an ounce of chloroform at that time in the United States, and it was therefore necessary to make it for this trial. Twenty-three years later, during 1870, Dr. Edward R. Squibb estimates the total quantity of chloroform sold for consumption in this country at 80,000 pounds. About one third of this amount, say 26,000 pounds, is used for anæsthetic purposes by inhalation. Next, it may be estimated that one and a half fluid ounces are used or wasted for each administration, and this would give 200,000 administrations, as a safe estimate for the whole country during the year 1870. Dr. Squibb puts down one death in 5,882 administrations in this country. No chloroform of any importance has been imported into the United States, or exported from it, within several years past, and there are but about four original sources of supply.

[The student who prepared the chloroform in Dr. Jackson's laboratory in 1847, and was the first in this country to take it for anæsthetic purposes, was Charles A. Joy, at the present time Professor of Chemistry at Columbia College, New York. —EDS.]

CARBOLIC ACID AND FLEAS.

A correspondent asks, if fleas are not insects? and if they are, why carbolic acid cannot be used to exterminate them from dogs? We must remind him of Goldsmith's elegy on the death of a mad dog:

"The man recovered of the bite,
The dog it was that died."

So many dogs have been killed by the application of too strong carbolic acid, that the remedy is looked upon as worse than the disease. In moderate quantities, it could be applied with safety, but, as we remarked on a former occasion, the torture of the poor dogs is often worse from the acid than it is from the fleas. Under any and all circumstances, carbolic acid must be used with caution, as it is a powerful poison.

DESTRUCTION OF ABBÉ MOIGNO'S LIBRARY.

Abbé Moigno, the genial editor of the journal *Les Mondes*, met with a severe loss during the siege of Paris. He says in his paper for March 2, 1871: "I had on Sunday, January 15th, written a severe article about the barbarity of the Germans in bombarding a city of two millions of inhabitants, when on Monday, the 16th, a bomb fell into my narrow apartment, and destroyed nearly everything in it, including a thousand volumes of books." It appears that he had just left his study, and his life was thus providentially saved. As a compensation to subscribers for the suspension of his journal during the siege, he proposes to send to all who request it, a copy of some of his printed works.

M. BECQUEREL, SR., NOT DEAD.

We learn from *Les Mondes*, of March 23, 1871, that the venerable Professor Becquerel is not dead, but is still actively engaged in the preparation of his work on the application of electricity to chemistry and physiology. It was the London *Athenæum* that started the report of his death, and hence the sketch we gave of his life. It is not often that a man in his eighty-fourth year displays so much industry and vigor as the senior Becquerel.

USE OF DYNAMITE IN ARTESIAN WELLS.

During the sinking of an artesian well in Holland, the borer struck a flint rock, very difficult to penetrate; and the engineers proposed to try the effects of dynamite as a substitute for the drill. A bottle, in which two copper wires were insulated by gutta percha, containing two pounds of dynamite, was let down to the bottom, and fired by a current of electricity; a loud report, and the discharge of a large volume of water from the well, indicated the force of the explosion, and it was only found necessary to repeat the operation twice to procure all the water required by the engineers.

DEATH OF PROFESSOR STAEDELER.

Dr. George Staedeler, Professor of Analytical Chemistry in Zurich, Switzerland, died on the 11th of January, 1871, at the residence of his parents, in Hanover. Professor Staedeler, in his early studies, passed through the usual routine of the pharmaceutical career, but passionate love for the natural sciences impelled him to enter the philosophical faculty at the University of Göttingen, and it was here that he laid the foundation for a distinguished sphere of usefulness. Under the instruction of Professor Wöhler, he applied himself chiefly to organic chemistry, and became a frequent contributor to the *Annals of Chemistry*, published by Liebig and Wöhler. One of his earliest papers was upon the preparation of chloral from starch. He was appointed Professor of Physiological Chemistry at the University of Göttingen in 1851, and, in 1853, received a call to Zurich as the successor to Professor Löwig. When the now famous Polytechnic School was established in Zurich, in 1855, Dr. Staedeler was transferred to the chair of analytical chemistry; and upon him devolved the task of constructing a working laboratory, in accordance with the wants of the new institution. The laboratory, built under his supervision, was at the time pronounced to be the best in Europe; and it has served as a model for nearly every laboratory that has since been constructed, either in Europe or America. Nearly ten years ago, Professor Staedeler contracted a disease of the heart, while on a tour in the Alps, and since that time his life has been a constant struggle between failing health and an impatient desire to carry forward important scientific researches. The ravages of disease finally compelled him to resign his professorship, and he returned to the house of his aged parents, where, surrounded by the friends of his youth, and watched by the tender care of his relatives, he finally passed away, after only a few days of severe illness, on the 11th of January, shortly before attaining his fiftieth birthday. His death will be a severe blow to the school where he taught, and to the science which has been so much enriched by his labors.

A GREAT SPEECH.

It is not often that such solid words of wisdom fall from the lips of man as were uttered by Mr. Peter Cooper, at the recent Annual Commencement of the institution founded by him. The occasion was one of unusual interest on account of the presentation of an address from the present and past pupils to the venerable founder of the Union. This address, unlike most similar productions, was remarkably well written, tender in the expression of affection, full of gratitude, beautiful in sentiment. It has been elegantly engrossed, and elaborately framed for preservation in the great reading room of the Institute, and is in better taste than any bronze statue or monumental device could have been. The thousands of grateful pupils say to the world "if you seek a monument look about you," and Mr. Cooper's name and fame is rendered more secure and imperishable in such a way than it could be in any other.

The remarks of Mr. Cooper, in reply to the presentation address, were full of wisdom, and deserving of preservation in a permanent form. The venerable author would blush to have his words called a speech, and yet we venture to say that a greater speech was never heard in the large hall where have been assembled, from time to time, nearly all of the wise men of our country. Writers on political economy devote many pages to the elaboration of the laws of trade, the question of demand and supply, the relations of employer and employed, the rights of property, and the duties of men of wealth, but Mr. Cooper has condensed the whole matter into a few words, and if these words could sink deep into the hearts of all mankind, we should never again hear of the rich oppressing the poor, nor of the poor destroying themselves by "lock outs" and "strikes."

We advise every manufacturer, every mechanic, every laborer to procure a copy of this address, and trade unions could not do a better thing than to have it reprinted for gratuitous circulation among their members. It ought to have the widest possible circulation, and, to this end, we propose to give the greater part of it in our columns.

Mr. Cooper celebrated his eightieth birthday by making an additional gift of one hundred and fifty thousand dollars to the Union, for the foundation and support of a free circulating library. This act was all that was necessary to round up and complete the usefulness of the Institute.

The laboring poor can now obtain gratuitous instruction in every department of practical knowledge, and when unable to attend the exercises of the school, can still profit by the benefaction by carrying home with them the book required for their information. By such acts of benevolence, and by the gift of more than a million dollars for the free education of workingmen and toiling women, Mr. Cooper has earned the right to offer advice, both to the rich and poor. He shows how to earn a fortune and how to spend it. He says: "While yet a child, I learned that 'the hand of the diligent maketh rich,' and whatever of wealth I have achieved has been due, primarily, to habits of patient industry formed at the outset of my career."

He early learned that the great part of the poverty, vice, and crime which afflict the American people was due to intemperance, and he "carefully avoided all alcoholic liquors as the greatest curse of the young, and the most deadly foe to domestic happiness and the public welfare."

He next warns against hastily contracted debts, and suggests the wisdom of trying to keep a little ready money on hand for judicious investments. Debt is a slavery which every young man ought to avoid; or, if assumed, ought not to endure for one day beyond the shortest time necessary to set him free. "By shunning intemperance, and practising rigid economy, he was able to grow in prosperity and wealth, but the opportunities of acquiring knowledge were so limited, there being no free day or evening schools, that he found it far more difficult to learn what he wanted to know than to be industrious, temperate, and prudent. Hence he decided that, if he should prosper in the acquisition of worldly means, to found an institution to which all young people of the working classes who desired to be good citizens, and to rise in life, could resort, without money and without price, in order to acquire that knowledge of their business, and of science, which, in these days, is absolutely indispensable to a successful career."

Mr. Cooper never lost sight of this resolution during a business career of nearly sixty years; and all this time, he says, that he was "cheered, comforted, sustained and encouraged by the greatest of human blessings, a diligent, wise, industrious, faithful, and affectionate wife; and by the active co-operation of his children, who justly regarded, as the richest portion of their inheritance, that part of his wealth which he desired to consecrate to the public welfare."

Having thus given an account of the train of circumstances which led to the foundation of the "Union for the Advancement of Science and Art," Mr. Cooper closes with the following eloquent words:

"I do not pretend to prescribe any standard of expenditure for others, and I am quite ready to subscribe to the doctrine that a just and faithful trustee should be liberally paid for his services, and should not be restricted in the reasonable gratification of his desires so long as the rights to others are not thereby infringed; and I desire to give the fullest recognition to the sacredness of private property and the conservation of capital, as for the best interests of society and all the members thereof; but I cannot shut my eyes to the fact that production of wealth is not the work of any one man, and that the acquisition of great fortunes is not possible without the co-operation of multitudes of men, and that therefore the individuals to whose lot these fortunes fall, whether by inheritance or the laws of production and trade, should never lose sight of the fact that, as they hold them only by the will of society, expressed in statute law, so they should administer them as trustees for the benefit of society, as inculcated by the moral law.

"When rich men are thus brought to regard themselves as trustees, and poor men learn to be industrious, economical, temperate, self-denying, and diligent in the acquisition of knowledge, then the deplorable strife between capital and labor, tending to destroy their fundamental, necessary, and irrefragable harmony, will cease; and the world will no longer be afflicted with such unnatural industrial conflicts as we have seen, during the past century in every quarter of the civilized globe, and latterly on so great a

scale in this country, arraying those whom nature intended to be firm allies and inseparable friends into hostile camps in which the great law of love and mutual forbearance is extinguished by selfish passions. The law of force, whether expressed in trade associations, preventing other men from exercising their unalienable right to labor where they can find work, or in combinations of capitalists seeking by lock outs to close the avenues of labor, are equally reprehensible and should never be allowed, under any provocation whatever, to take the place of the divine law: 'Whatsoever ye would that men should do unto you, do ye even so unto them;' nor will such an unnatural and criminal substitution ever be possible, if poor men will remember that it is the duty and therefore the right, of every poor man to strive to become rich by honest, intelligent and patient labor, and if rich men will remember that the possession of wealth, which is the fruit of the general effort, confers no right to its use as an engine of oppression or coercion upon any class which is concerned in its production. Let me then record that, during a long life passed in active business, I have never known any but evil consequences to all classes, and especially to the innocent, to result from strikes, lock outs, or other forcible measures designed to interfere with the steady and regular march of productive industry, and I feel justified in an earnest appeal to both workmen and capitalists henceforth to regard each other as equals and friends; and to imitate the great example, so recently set by the enlightened governments of Great Britain and the United States, in the submission of their differences to arbitration; and not to expect to reform social evils by combinations designed to force either side into the acceptance of unpalatable terms, by the stern logic of starvation and indiscriminate ruin. Reform, to be of any permanent value, must be based upon personal virtue, not force; and it seems to me that the millenium will not be far off, when each individual shall set about reforming himself rather than society, and conforming his life to the great law of loving God and his fellow-men. While I thank you, my young friends—I had almost said my children—for this manifestation of your respect and gratitude, so touching because so full of love, let me ask you to accept of this feeble but heartfelt reply as a kind of last will and testament of the garnered experience of an old friend, whose days are almost numbered, and who asks only to be remembered as "one who loved his fellow men."

KLINKERFUES' APPARATUS FOR IGNITING GAS AND OTHER LIGHTS.

This new apparatus, devised by Professor William Klinkerfues, of the University of Göttingen, was very briefly noticed in our last issue. It has, however, so many points of scientific interest, especially bearing upon the mysterious phenomenon known as catalysis, that we this week give a full account of the invention, as well as the principles upon which it is based.

The invention consists in the arrangement of a vessel containing a liquid, which, when brought in contact with a pair of galvanic plates suspended within said vessel, will close an electric circle and produce a current, whereby a piece or pieces of platinum wire, held in electrodes that connect with the said galvanic plates, will be excited to produce catalytic action and ignite combustible matter with which they may brought in contact.

The catalytic effects of platinum in its spongy, pulverous, or porous state have been frequently proposed as a means of lighting gas and other flames; but, if the short-lived success of the Doebereiner apparatus be excepted, no practical results have as yet been attained.

In these peculiar forms platinum is too liable to change to admit of the long and frequent use required by the exigencies of domestic applications, at least in any of the manners hitherto proposed. Nor does, in fact, spongy platinum, freshly prepared, ignite common illuminating gas.

These considerations lead naturally to the idea of employing more durable forms of platinum, such as wire or plate, and producing the same catalytic power by means that will not be subject to new objections. Still, there do not, thus far, seem to have been any proposals or experiments brought forward in this direction.

The experiments undertaken by Herr Klinkerfues for the purpose of ascertaining the temperature at which compact platinum, brought into the shape of wire or plate, acquires sufficient catalytic power to ignite illuminating gas, showed that not even a red heat was required. A platinum wire inserted between the poles of a very small galvanic pair of zinc and graphite, without showing the slightest emission of light in the dark, ignited a jet of glass almost instantaneously. It is evident, in this case, as the red heat of the wire is only an effect of catalytic action, that the galvanic circle is acting in a very different manner from the former methods, which effect ignition by the direct action of the electric spark.

This circumstance and the hydraulic closing of the galvanic circle are the principal characteristics of the new contrivances, whose practical value has, it is asserted, been tested by numerous experiments; for if a stronger action of the galvanic current were required, the power of the battery would be exhausted in a far shorter time; and indeed it would be impossible to employ an apparatus of small interior resistance, such as zinc and graphite, with a solution of bichromate of potassa and sulphuric acid, or chloride of silver and zinc with a solution of salt, for months without renewing the filling. At the same time the hydrostatic manner of closing and breaking the galvanic circle affords the easiest and simplest means of instantly producing the desired catalytic action, and afterward stopping it again at will, for the sake of economizing the materials.

On this principle of imparting catalytic power to platinum in its compact forms, by means of the galvanic current, the inventor has had several kinds of gas lighting contrivances constructed, for which patents have been obtained through the Scientific American Patent Agency.

The first apparatus consists of a thin, hollow, glass cylinder, of suitable size, closed at the bottom, and covered by a plate, bearing on the inside a galvanic pair of zinc and graphite plates of small size.

These plates are respectively connected with electrodes that project from the outside of the plate, holding an inserted bit of platinum wire. The liquid filling consists preferably of the well known mixture of bichromate of potassa and diluted sulphuric acid, which will be active for a long time.

In order to light gas flames for domestic purposes with this simple apparatus it is only necessary to incline it sufficiently, and, at the same time, hold the platinum wire before the jet of the gas that escapes from the burner. But when the apparatus is placed upright, the plates not touching the liquid, no galvanic action takes place, and consequently no material is consumed by electric action, so that, it is claimed, a mixture of the value of a few cents suffices for many thousand repetitions of the operation.

When the mixture is comparatively fresh, the platinum wire becomes so far red hot as to ignite a paper match impregnated at one end with chlorate of potassa.

The second application of the same principle is intended to supply a kindling apparatus for rooms not furnished with gas.

Doebereiner's principle for the evolution of hydrogen gas is worked by the pressing down of a lever, which, at the same time, immerses a small galvanic pair of zinc and graphite plates in a mixture of bichromate of potassa and sulphuric acid, and thus excites catalytic power in a platinum exposed wire, to the hydrogen gas jet.

The working of Mr. Klinkerfues' apparatus is said to be very reliable, rendering it far preferable to Doebereiner's with platinum in the spongy form.

The third of the proposed contrivances is intended to be applied to street gas lights for the purpose of simultaneously lighting and extinguishing a number of lamps from a single station with the smallest possible loss of gas or other material.

Important reasons forbid that the shutting off the gas supply should be placed far back of the mouth of the burner, and make it necessary to devise some means for opening and cutting off the supply from a distance. At first sight the simplest way to effect this would seem to be by stop cocks, connected with electro-magnets, to be worked by galvanic action from a common station. But, in the first place, it would hardly be possible to guard against loss of gas and the entrance of atmospheric air into the pipes.

Another consideration presents itself in the fact that galvanic batteries intended for the production of caloric must be of weak resistance, and are, therefore, incompatible with great lengths of conducting wires, as well as long duration of galvanic action, if a frequent renovation of the filling is to be avoided. It is, therefore, proposed to furnish each lamp post with its own galvanic apparatus, and to make the galvanic pair touch the liquid only during the short time of lighting up.

An hermetically closed vessel is provided with a compartment or bell, open at the bottom, so as to communicate with the main vessel, and having a galvanic pair of zinc and graphite fixed to the cover in such a manner that the solution of bichromate of potassa with sulphuric acid, contained in the lower part of the vessel, is not reached by them when the apparatus is in its usual inactive state. A pipe leading to the burner of the gas flame, passes, air-proof, through the cover of this vessel, and is immersed in the liquid, thus shutting off the outward air from communication with the upper part.

The latter is filled, above the above named liquid, with illuminating gas supplied from the gas works, and as the pipe which passes through the cover is of sufficient length to hold the hydrostatic column raised by the small and nearly constant pressure usual in gas pipes, it takes the place of the last stop cock in the supply pipe.

By another pipe leading to the bell from a station at any required distance, the air in the upper part of the bell can be rarefied, and thus the liquid in the hermetically closed vessel can be sucked up, lowering the surface so that the escape of the gas through the pipe leading to the burner is first opened, and then, on continued suction, the zinc and graphite plates are reached by the liquid.

At this point the galvanic circle is closed, and the platinum wire over the mouth of the pipe leading to the burner becomes heated, and acquires sufficient catalytic power to kindle to a flame the hydrogen contained in the gas jet.

After this is effected, a slight remission of the sucking power in the pipe is made to sink the level below the galvanic plates in order to avoid unnecessary exposure, but without shutting off the escape of the gas.

In order to make sure of this effect on all the lamps a model apparatus must be placed at the station, corresponding in all respects to those of the lamps.

The putting out of the light is effected by opening the sucking pipe to the access of atmospheric air, thus restoring the previous state of equilibrium, and, at the same time, preventing differences of temperature in different parts of the sucking pipes to cause partial suckings, and thus stop the correspondence in the working of the apparatus on the different lamps.

This apparatus may be attached to any ordinary gas pipe, and is easily removed, when required, for the purpose of a revision.

To guard against interruption in the hydraulic connection of the galvanic circle by the effect of low winter temperature, in either freezing the water of the filling or causing the bichromate of potassa to be crystallized from the solution, it is necessary to employ, during the winter months, a solution containing a greater quantity of sulphuric acid and less of the chromate, a mixture that practically is best prepared on cold winter days.

Let in the Sunlight.

Mrs. Henry Ward Beecher, in an article in the *Christian Union*, on mistakes in our houses, specifies the "exclusion of sunlight" as one. She says:

We wish the importance of admitting the light of the sun, freely, as well as building these early and late fires, could be properly impressed upon our housekeepers. No article of furniture should ever be brought to our homes too good or too delicate for the sun to see all day long. His presence should never be excluded, except when so bright as to be uncomfortable to the eyes. And walks should be in bright sunlight, so that the eyes are protected by veil or parasol, when inconveniently intense. A sun bath is of far more importance in preserving a healthful condition of the body than is generally understood. A sun bath costs nothing, and that is a misfortune, for people are deluded with the idea that those things only can be good or useful which cost money. But remember that pure water, fresh air, sunlight, and homes kept free from dampness, will secure you from many heavy bills of the doctors, and give you health and vigor, which no money can procure. It is a well established fact that people who live much in the sun are usually stronger and more healthy than those whose occupations deprive them of sunlight.

Silver Ores from Utah Territory.

It is proposed to erect in Pittsburgh, smelting works of sufficient magnitude to reduce the silver ores from the West, and so save the heavy transportation charges to and from England or Germany, in which countries the ores are chiefly at present smelted. A project of this kind is not likely to lack encouragement from the Pittsburgh capitalists, and the operation is expected to commence in the present month. Thus will be added another important manufacture, and a new source of prosperity, to the varied and important industries of Pittsburgh.

Mr. R. J. Anderson recently brought to Pittsburgh, some specimens of silver ore, which had been taken from the earth under his personal supervision. The yield of silver from the mines in question has been as high as eight hundred dollars per tun of ore; besides a very large percentage of lead, enough, indeed, to pay all the expenses of mining, freight to Pittsburgh, and the cost of smelting.

How to Banish Fleas.

The *Maryland Farmer*, a most excellent monthly, published in Baltimore, gives the following useful recipe for exterminating fleas:

"The oil of pennyroyal will certainly drive these pests off; but a cheaper method, where the herb flourishes, is to throw your dogs and cats into a decoction of it once a week. Mow the herb and scatter it in the beds of the pigs once a month. Where the herb cannot be got, the oil may be procured. In this case, saturate strings with it and tie them around the necks of dogs and cats, pour a little on the back and about the ears of hogs, which you can do while they are feeding without touching them. By repeating these applications every twelve or fifteen days, the fleas will flee from your quadrupeds, to their relief and improvement, and your relief and comfort in the house.

Strings saturated with the oil of pennyroyal and tied around the neck and tail of horses will drive off lice; the strings should be saturated once a day.

An Useful Invention on Shipboard.

Not long ago there was seen on board the timber laden ship *Henry Woolley*, lying in the Victoria Dock, Leith, a useful but unusual piece of machinery, so far as ships are concerned. The vessel was making water, and to save the crew the heavy labor of pumping her, a windmill, with simple machinery was connected with the pumps. When the wind was blowing high, recently, the mill was revolving with great velocity, and doing the work well. Such an appliance was lately adopted with marked advantage on board an Aberdeen guano laden vessel, which sprung a leak when she was a month out at sea, on her voyage from Callao to Leith. A handy carpenter, who was on board, set to work at the suggestion of the captain, and rigged up a windmill which relieved the crew of their extra work, and enabled the crew and the ship to arrive safe in port. The use of the windmill for pumping barges is very common in this country. They are employed on most of the North River ice barges that ply between this city and the up country ice establishments.

TERRA COTTA IN GEORGIA.—A correspondent informs us that terra cotta of the finest quality is found near Atlanta, Ga., and is now being worked into drain pipes, chimney tops, building ornaments, flower vases, garden statuary, fountains, etc.

WE are glad to hear of the recovery and repair of one of the Anglo-Atlantic telegraph cables. The British steamer *Scanderia* is now fishing for the second cable, and we shall probably soon announce its restoration to efficiency.

THE use of torpedoes for killing fish for manure, on the coast of Florida, has driven the shoals of fish from the shore, and has naturally been resented by the inhabitants of the seaboard of that State.