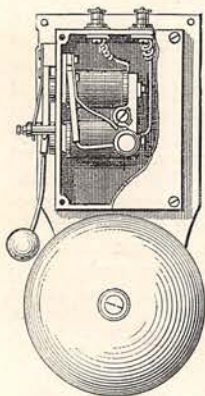


Correspondents are requested, when applying to the Editor for the names and addresses of the persons from whom further particulars respecting the articles in THE GATHERER may be obtained, to forward a stamped and addressed envelope for reply, and in the case of inventors submitting specimens for notice, to prepay the carriage. The Editor cannot in any case guarantee absolute certainty of information, nor can he pledge himself to notice every article or work submitted.

A Watertight Electric Bell.



On ships and in railway stations, mines, and other exposed localities electric bells are apt to become wet, and cease to operate, owing to the leakage of the electricity; but in the bell we illustrate the works are confined in a watertight case of metal. As a consequence, the bell works out of doors in all weathers, and even under water. The figure shows a six-inch bell with a part of the case removed, to exhibit the electro-magnets which actuate the hammer.

Kendir.

"Kendir" is the name given by the Tartars of Central Asia, east of the Caspian, to a plant which flourishes by the watercourses, but also grows in dry places, and furnishes a very strong supple fibre. Twine and cloths are made from it by the Tartars; and a French traveller, M. Blanc, having brought home specimens, it is to be tried as a textile plant in Algeria. We may add that M. Blanc has also brought to Europe a species of cotton which grows in Central Asia, and has the merit of enduring a low temperature without harm.

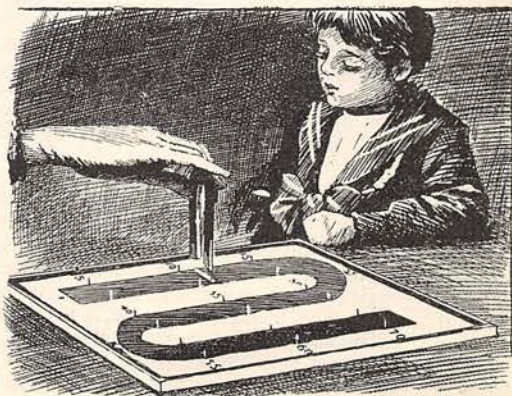
Volcanic Stalactites.

In a recent GATHERER we described an eruption of the crater lake of Kilauea, in the island of Hawaii. Now a later observer has recorded an effect of the eruption, which is not unlike the formation of stalagmites and stalactites in limestone caverns. Fluid lava, when shot into

the air, becomes porous; and when, in falling to the ground, it forms a cave underneath, the porous roof of the cave sometimes allows a fresh deposit of liquid lava to trickle through, and solidify in irregular jets hanging from the ceiling of the cave or standing on the floor. These volcanic warts, as we may call them, are usually brittle, hollow, and porous. Their colour is black or brown, and they consist largely of felspar, augite, magnetite, and other volcanic minerals, but their surfaces are often crusted with selenite.

A Magnetic Game.

A simple but interesting magnetic game can be played by young and old with the board which we illustrate. The object of the game is to make the small roller pass from one end to the other of the course marked on the board in the form of an S, without its touching the little pins at the side. The roller is of iron, and the player moves



A MAGNETIC GAME.

it by holding a horseshoe magnet over it. To increase the difficulty of the game, the pins, which are of steel, can be magnetised.

A Home-Made Lazy-Board.

Many of our readers may have looked with longing eyes at the very beautiful arrangements which can be had in leather, more or less costly, for a writing board which can be used when placed on the knee. You will see here an illustration of a board of this kind. This was made at home, and is found most useful and convenient; and those of our readers who wish to make one must proceed as follows:—The size of the board must be regulated by the taste of the person who is to use it. Get a flat board the required size, and then purchase some cloth with which to cover it.



A HOME MADE LAZY-BOARD.

Of course, the wood must be well seasoned, or it will warp, and thus spoil the whole thing. Cloth is preferable to serge or felt, and if you get it the width to accord with our measurement of the board, you can manage it economically. Stretch the cloth well over the board, back and front, and secure it in its place by driving in strong fancy nails all the way round. If you cannot get nails strong enough to hold the cloth firmly, then use small furniture tacks, and these should be the exact colour of the cloth. The straps required to hold paper, address book, calendar, pens, etc., should be nailed down. Elastic is good for this purpose, but it must be of the very best, about an inch wide and made of silk. A box for stamps, blotting pad, spring inkstand, and penwiper are all to be fixed on the board, and for these articles glue is necessary. Gum is not sufficiently strong, and carpenter's glue is the only thing which will prove satisfactory. This can be made very quickly and easily, and must be used while it is hot. The board before you is used as it is, and has no covering. A great improvement, which is sometimes seen, is to have a flap of the same cloth fastened all the way round the farthest side. This comes over the whole board, and can be secured by a button sewn on to it and a loop

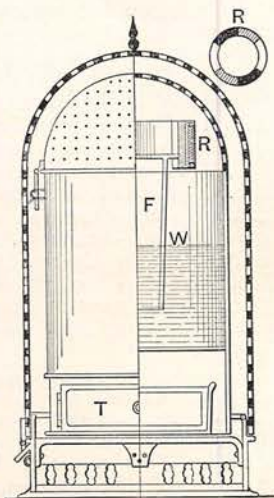
of elastic nailed on the board. It preserves the whole thing from dust, and can be thrown back when the board is in use. Another variation of this board is to carry the cloth half-way further beyond the board on both sides, and then double it over. This forms pockets, which can hold all kinds of papers. These papers all slip out, however, when the double end is folded over the board, as it is intended they should, and a button or button-hole adds greatly to their usefulness. These boards are a great convenience, and sell extremely well at bazaars

A Cascade of Stone.

A curious geological phenomenon is found along the shores of the Mississippi River, between the towns of Keokuk and Burlington, in south-eastern Iowa, United States. It is a kind of cascade of limestone, which resembles a frozen waterfall, and it occurs where the limestone rock overlies beds of soft shale. The limestone under the action of water overflows the shale and forms a curtain of stalactites in the open air.

The Beehive Deodoriser.

Our engraving shows a neat and simple stove or vaporiser for sanitary purposes, which has been invented by Mr. J. Wilson for use in homes, offices, and hospitals. It is intended to diffuse the aromatic and disinfecting oils of eucalyptus, pine trees, and so on, or perfumes—such as lavender. The apparatus is made of metal, and consists of a tray (T) seen in section on the right-hand side of the figure, a reservoir (W) into which a funnel (F) descends, and a metal ring (R) covered with flannel. The tray contains a "chemical heater," or block of carbon impregnated with an oxygenated salt. To use the deodoriser this block is made red-hot in a fire, and then put into the tray. The reservoir is charged with a pint of water, and half an ounce of the essential oil, employed as a disinfectant, is poured into it through the funnel. The ring is further saturated with the oil, or with a perfume, if desired, and placed in position round the mouth of the funnel. The heat of the block vaporises the water, and the steam, mingled with the vapour of the disinfectant, issues through the holes in the case of the apparatus, and sheds itself throughout the room or house. As the block retains its heat for eight hours, the deodoriser requires no care during the night; and as there is no flame, there is no danger of fire. The vapours of eucalyptus, pines, and other trees



THE BEEHIVE DEODORISER.



THE TREATMENT FOR ELECTRIC SHOCKS.—FIG. 1.

are remedies for consumption and other diseases, and patients are sometimes sent abroad to pine-woods at much expense and inconvenience; but this vaporiser brings the virtue of the trees into the home. It is inexpensive and simple, and has been highly recommended by medical authorities of the highest standing.

An Electric Pencil.

In retouching photographs the pencil only marks well if "stippled," and hence the following electrical device for giving a small reciprocating motion to its point. By means of a little electro-magnet, excited by an electric current brought to the tool by insulated wires, the pencil is rapidly vibrated, like the hammer of an electric bell of the "trembling" type. In this way the point is made to act with a tremor, and the whole instrument being light in the hand, the retouching is delicate.

Electricity and Paper Pulp.

In Sweden paper pulp is now bleached in a solution of the chlorides of the alkalis or alkaline earths, and a current of electricity passed through the bath from carbon plates. In about half-an-hour the bath and pulp is emptied into another vat and the bleaching process allowed to finish of itself.

The Treatment for Electric Shocks.

Messrs. Alabaster, Gatehouse, and Co., proprietors of the *Electrical Review*, have issued a series of hints for the use of establishments where there is a danger of persons receiving an accidental shock of electricity. In many cases death is only apparent, and every effort should be made to resuscitate the victim by the method of artificial respiration now applied to drowned persons, or those who have been shot in the brain. As accidents of the kind happen every now and then, even on the streets, the directions given cannot be too well known, and they are based on the researches of eminent authorities—for instance, Drs. D'Arsonval, Goelet, Hedley, and Lewis Jones. When the victim is found still grasping the wire which has given him the shock, or even touching it with his body, he must not be seized, as there is danger of the rescuer getting a shock. Before taking hold of him, even by his

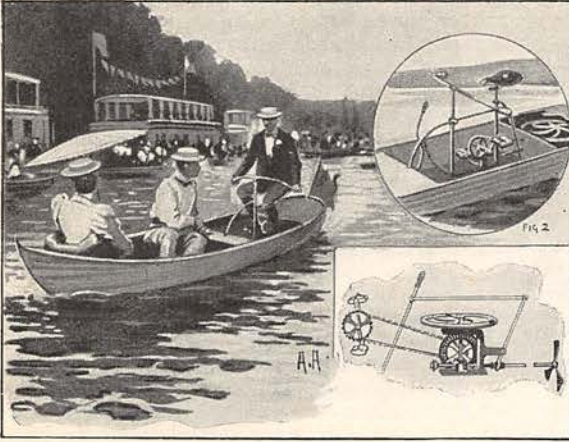
clothes, the rescuer should put on a pair of india-rubber gloves, or otherwise insulate his body by covering his hands with a thick layer of dry rags, or, at all events, *dry clothing*. A doctor should be sent for at once; but, pending his arrival, the artificial respiration should proceed. For this the victim must be laid on his back, and his clothes loosened. A roll made of a coat, or anything else that is convenient, should be placed under his shoulders, so as to prop the spine and allow the head to hang backwards. The operator should then kneel behind the victim's head, grasp his arms by the elbows, and draw them well over the head, so as to bring them almost together above it, and hold them there for two or three seconds. Then he should carry them down to the sides and front of the chest, firmly compressing the chest by throwing his weight upon the arms. After two or three seconds the arms should be again carried above the head, and the operation repeated at the rate of sixteen times a minute. In addition to the foregoing treatment, if there is an assistant at hand, the tongue of the victim should be gripped with the aid of a cloth, and drawn out forcibly during the act of inspiration—that is to say, when the arms are extended above the head. When the arms are brought down the tongue is permitted to recede into the mouth. This manipulation is to be repeated rhythmically with the movement of the arms. It should be borne in mind, moreover, that in order to be successful these operations must be carried out with vigour, method, and deliberation, and not with excitement, haste, or irregularity. These efforts to induce breathing must be kept up until the full and normal respiration is restored, or until it is absolutely certain that life is extinct; and it is stated by Dr. Goelet that one cannot feel sure of this, unless the treatment has been applied for at least an hour. According to Dr. Hedley, the attempts of bystanders to pour stimulants down the throat of the victim should be resisted until a medical man arrives. Oxygen gas, if it can be made to enter the lungs in breathing, is a stimulant to the heart; but this and other remedies had best be administered by a skilled person.



THE TREATMENT FOR ELECTRIC SHOCKS.—FIG. 2.

Crystals in Books.

According to Mr. A. T. Tait, the pretty dendritic crystals which are found in the pages of books, and



A BICYCLE BOAT.

resemble little stars or the growths in moss-agates, are seldom or never seen in books older than 1835 or younger than 1882. Some twenty years are required for their development. They are probably due to fragments of copper dropped on the paper during its manufacture or in printing. In American and Continental books he has not been able to find them at all.

A Bicycle Boat.

A French inventor, M. Vallet, has introduced a boat on the lake of the Bois de Boulogne, Paris, which is propelled by the occupant after the manner of a bicycle. As will be seen from our engraving, the seat, pedals, and steering gear are similar to those of bicycles, but the motive power is applied to turn a screw at the stern of the boat. The speed of the craft is about five miles an hour in calm weather.

Argon.

The finding of a new gas in the atmosphere by prediction and not hazard is a feat reminding us of the discovery of the planet Neptune by Adams and Leverrier. Lord Rayleigh was led to infer the existence of a hitherto unknown gas in atmospheric air—which, after the experiments of Cavendish, had been supposed to consist merely of oxygen and nitrogen—by observing that nitrogen prepared from the atmosphere was slightly heavier than nitrogen isolated from other sources by chemistry. In fact, an equal quantity of “chemical” and “atmospheric” nitrogen weighed respectively 230 and 231 grains. The experiments of Cavendish, however, left some room for the belief that another gas than nitrogen might exist in the air, and it is rather curious that one has not been discovered before; but chemical methods are always being refined, and the new gas is only present in a small proportion. Lord Rayleigh and Professor Ramsay have hunted it down with dogged perseverance, trying all manner of experiments to make sure that it is a new element, ascertain its properties, and devise the best methods of obtaining it. One way is to pass atmospheric air over red-hot copper, which combines with the oxygen to form oxide of

copper, and then pass the remaining gas over red-hot magnesium, which absorbs the nitrogen, and leaves the argon behind. Five and a half litres of atmospheric nitrogen yield three and a half cubic centimetres of argon. Argon is a colourless gas, having a density of 19·8—that of hydrogen being 1—and an atomic weight of about 40. Its most remarkable property, so far as known, is that it refuses to enter into chemical combination with any other element, and hence its name of “argon,” which means “inactive.” It cannot be made to go into partnership with oxygen, hydrogen, or chlorine, even under the electric discharge, nor with phosphorus or sulphur at a red heat. Sodium, potassium, and tellurium, which are so easily oxidised, may be distilled like mercury in the gas, retaining their metallic lustre. Spongy platinum or platinum black will not absorb it. The most energetic liquids, such as nitro-hydro-

chloric acid and bromine water, failed to draw it from its attitude of cold indifference. It can hardly be supposed, however, that argon is absolutely useless; and Professor Roberts-Austen, chemist to the Mint, has suggested that it may have something to do with the properties of Bessemer steel, as 1,000 cubic feet of the gas go into the “converter” during a charge. It will be curious if argon should turn out to be an idler in the universe, or at least in our corner of it, at the present time. Probably, however, science will soon discover uses for it, perhaps with the electric furnace, or else invent them. Another curious fact is that it possesses two distinct spectra—one of bright red, the other of blue lines—which are got from it by passing electric sparks through it while varying its pressure and the strength of the electric current. At ordinary pressures the glow of the spark in argon is a vivid bluish-red, reminding us of the colour of some lightning-flashes—which, indeed, may be caused by it. Argon is liquefied at a temperature of 121° Cent. below zero, and solidified or frozen at 189·6° Cent. below zero. Apparently the molecules of the new gas are single atoms, not clusters of atoms; and hence the discoverers wittily propose to give it the chemical symbol of “A1.”

Liquid Carbon.

M. Moissan, the distinguished French chemist, who succeeded in making diamonds in his electric furnace, has now been able to liquefy carbon by the same means. When the electric arc in his furnace is sufficiently intense the carbon is vaporised, and may be liquefied in several ways—for example, by pressure. Moreover, drops of the liquid solidify into a species of diamond found occasionally in the mines of Brazil and South Africa. It is a mistake, however, to suppose that carbon softens in the heat of the arc, and can be welded. When the carbon is pure it does not soften, but either vaporises or turns into graphite.

Flying Shell Fish.

Dr. Ostroumoff, of the Sebastopol Biological Station, has observed a tiny green crustacean

(*Pontellina Mediterranea* Claus) flying just above the level of the water. Many of them sprang from the surface, and described a long curve before falling into the water, after the manner of Herr Lilienthal with his artificial wings.

Science and Sorrow.

That sorrow and grief exert a bad influence on the functions of the body has long been known, but the nature of this effect is now receiving careful attention from physiologists. According to Dr. Louise Fiske, the American lady doctor, sorrow is a disease and should be treated as such. The internal organs of dogs which have died of homesickness or other forms of depression, show a deterioration similar to that caused by starvation or infectious diseases. Dr. Louise Fiske considers that sorrow, as a disease, must run its course, and that all attempts to banish it and cheer the patient up are futile. As a disease it must be treated in a special way, and she recommends quiet drives in the country, or gentle walks with Nature, in the woods or by the sea-shore. The patient should not be tasked either in mind or body. The bright, sweet society of children is preferable to that of adults, and the presence of the familiar newspaper or magazine may be a comfort where the most tender and sympathetic friend is troublesome. Mourning wear is, in her opinion, useful for a time, a year at most, because it secures consideration for the sufferer; but if continued too long it becomes a burden and a source of low spirits.

An Electric Table Fountain.

Table fountains, as a rule, only throw a small jet of water ten or fifteen inches high for a quarter of an hour or so, but the new fountain introduced by a well-known maker, plays for three hours, and the jet rises from three to five feet. Our illustration shows one pretty design; but, of course, the fountains are in great variety. The works consist of a pump driven by a small



AN ELECTRIC TABLE FOUNTAIN.

electric motor actuated by a battery, or a connection from the electric-light wires of the house, as the case may be. The basin of the specimen we illustrate is twenty-two inches in diameter, the base twelve inches square, and the height about eighteen inches. Such fountains are, of course, an ornament in ball-rooms, vestibules, and conservatories, as well as on dinner-tables.

A Hand-Rest for Writers.

The little device shown in our woodcut is intended to support the hand of a penman, and thus prevent what is called "writer's cramp." It is simply a small chariot running on castors, and having rings for one or more fingers to rest in and hold or guide it.



A HAND-REST FOR WRITERS.

Power from Wells.

Under the prairies of the Upper Missouri and the Yellowstone rivers, in the United States, there is a water-bearing strata which, when tapped by borings, sends up an ample supply of water at a pressure sufficient to form a small geyser. At Redfield and other towns of Southern Dakota the water is now used to generate electricity as well as to irrigate the plains. The jet impinges on a hydraulic wheel, which drives a dynamo, and the electricity produced is applied to lighting and industrial purposes.

A Gas Steamer

A syndicate of Havre have introduced a screw steamer of 350 tons for service on the Seine, which is worked by a gas engine of 40 horse-power. The gas is stored in steel tubes under pressure, and takes up little room. The absence of smoke or noise, and the saving of space, is a great advantage, and it is probable that gas steamers will become general for river traffic.

A Safety Inhaler.

This inhaler, which is useful in chemical or other works where the atmosphere is noxious, contains a damp sponge to filter the air, and where bacteria are to be feared, the sponge is moistened with dilute solution of carbolic acid, terebene, or perfumed with eucalyptus oil.

The Chromophotograph.



M. Dumeny, a pupil of M. Marey, has introduced what may be called a portable kinetoscope—that is to say, an apparatus on the Zoëtrope principle, by which a series of instantaneous photographs of a living person can be combined so as to give a likeness, with all the movements of the face in talking or smiling—in short, a “speaking” likeness. As

we have so recently described the kinetoscope, we need not dwell upon the construction of M. Dumeny's apparatus, which is shown in the illustration. The observer looks through the spy-glass seen on the right, while the handle on the left is turned so as to move the series of photographs rapidly past his eyes, and give the impression of a single animated portrait.

Chinese Shadows.

Shadowgraphs, as we know them in the West, were introduced by Trewey, and perfected by various performers. No doubt the origin of the art is lost in antiquity, but they are described in a Chinese work, the “Yaskinaï-Koussa,” by Waki-Saka Gui-dò, dating from 1790, a copy of which lies in the Musée Guimet, at Paris.

Tales of Two Centuries.

At first there is an impossible sound about a story whose action extends over two centuries. But Mr. J. Bloundelle-Burton has contrived in “The Hispaniola Plate” (Cassell) to tell a stirring story of a search for submerged treasure which began in 1683 and was only finished a couple of centuries later. It would not be fair to tell here, in brief, how the plate came to be lost, and how in the finding of it Nicholas Crafer found also other trove in the West Indies and hid it away so carefully that he provided food for two hundred years of speculation on the part of his descendants. Mr. Bloundelle-Burton tells us all that and more, for he shows how Reginald Crafer found the treasure at last, and won at the same time for his wife the daughter of one who was descended from the man who brought about the original hiding away of the treasure, and had a better claim than Reginald to some of it.—From the cut and thrust of a stirring story of adventure over the sea to a collection of village tales, such as “Old Brown's Cottages,” which is the latest addition to Mr. Fisher Unwin's Pseudonym Library, is a far cry.

But there is an unmistakable air of reality about these almost too vivid pictures of the squalor and squabbling which go to make up one side of village life. Although each chapter is professedly devoted to a separate cottage, the series is really continuous.

Scented Flowers.

All amateur gardeners, and every lover of flowers, owe a debt of gratitude to Mr. Donald McDonald for his admirable work on “Sweet Scented Flowers and Fragrant Leaves,” which is published by Messrs. Sampson Low & Co. There is a very real danger in these days of green carnations and black roses that the fragrance which used in the good old days to be regarded as the chief charm of our flower-gardens will be cultivated out of them. So to all readers who wish for advice as to the selection of plants with scented flowers or leaves, we heartily commend Mr. McDonald's handy volume.

GARDENING IN MARCH.

SPRING flowers now delight the eye. The early daffodils spread a golden cloth over the garden, and as March runs into April, the lovely poets' kinds charm with their sweetness and purity. A walk round a good garden at this time, especially towards the end of the month, reveals many gems so easy to grow that it is surprising these lovely mountain flowers from a thousand hills do not bedeck every garden. At this time keen easterly winds often prevail, and these are more harmful than actual frost; therefore cover up such things as passion flowers and delicate roses. The covering need not be heavy—simply litter loosely placed amongst the branches, and kept in its place by a mat.

In late March roll the lawn well, and see that the walks are made ready for the coming summer. They must be well turned and re-gravelled, afterwards given a good rolling, otherwise they will never look bright and glossy, so to say. Gladioli—those bold, sturdy, finely-coloured flowers—may be put in now, and sow such seeds as coreopsis, Clarkia, annual chrysanthemum, convolvulus, linum, Virginian stock, sweet peas, poppies, and larkspurs. Sow thinly always, and when the plants get of sufficient size thin them out, so that each develops its true character.

Everything in frames—as petunias, “geraniums,” calceolarias, and half-hardy annuals—must not be kept stewing in a high temperature, but well hardened off before they are placed in the open. Pot off bedding “geraniums,” plant out roses, and it is not yet too late to plant fruit trees, shrubs, and hardy things; but they must be well planted, as autumn is unquestionably the best season for the work.

In the kitchen-garden department sow carrots, a little cabbage seed, cauliflowers, radishes, and plant out early potatoes.

Remember that as the sun increases in power the plants require more water, all seedlings especially needing attention. If once they remain dry for any length of time they seldom recover.