The Gatherer
An Illustrated record of Invention Discovery & Science

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New Lamps.

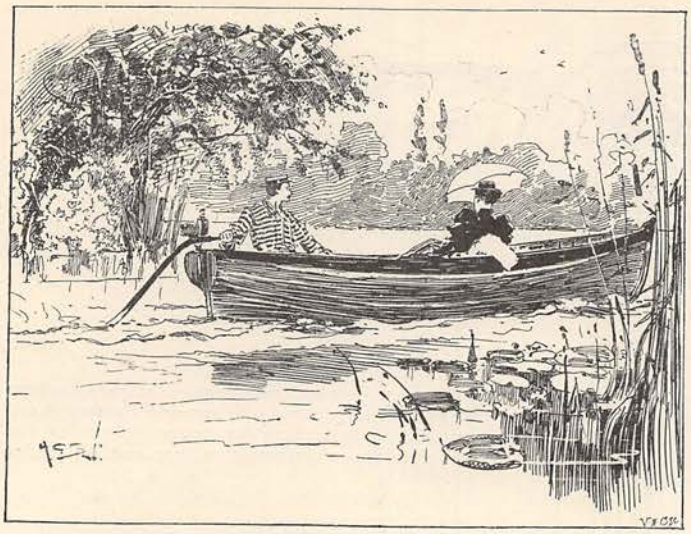
FIG. 1.

It has been repeatedly mentioned in THE GATHERER that acetylene gas can be prepared by simply dropping a piece of carbide of calcium in water. The carbide is a compound of carbon and calcium, effected by the heat of the electric furnace, and it has the property of decomposing water with the production of acetylene, a combustible hydro-carbon gas which yields a very brilliant white flame. The gas is so harmless that it can be lighted as it issues from the water without fear of explosion; and M. Gaston Trouvé, a well-known Parisian mechanician, has invented a table-lamp for burning acetylene. As shown in Fig. 1, the lamp consists of a gas-jet, J, under a shade, and a pannier, R, of wire gauze inside a water-vessel which forms the body of the lamp. To use the lamp, it is only needful to drop a piece, or pieces, of carbide into the pannier. The gas thus produced is allowed to pass to the jet or burner by turning the stop-cock C. A reservoir inside the lamp collects the gas in quantity, and thus regulates the supply.—Another new French lamp, shown in Fig. 2, is an application of the white-hot mantle or hood to a spirit-lamp. Our readers are aware that in the Wellsbach and Auerbach systems of gas-lighting a netted hood or cap of mineral fibre is placed over the burner, and becoming white-hot yields a bright light. In the new table-lamp of M. Engelfred the reservoir contains alcohol or pure spirits, and is burned with cotton-wick as usual, but a mineral hood over the burner becomes white-hot, and greatly increases the brilliancy of the light.

Pictures in the Eye.

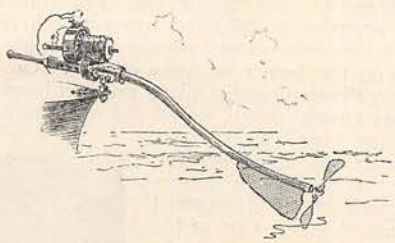
The notion that a picture of the last thing seen remains in the eyes of the dead, and might in some cases lead to the apprehension of murderers if it could be photographed, has been controverted by a recent American physician, as we have already mentioned in THE GATHERER. Nevertheless a remarkable series of experiments have been made more recently by Mr. W. Ingles Rogers which lend some colour to the notion, and will doubtless give rise to further researches. Mr. Rogers, who is a photographer, was drawn to the experiments by an accident. Happening to sit one day in his "dark-room," waiting for the development of a tardy negative, he fell into a reverie with his eyes fixed on an undeveloped photographic plate which stood on the bench in front of him. On subsequently developing this plate he found upon it a curious cloudy blotch, which did not resemble the ordinary "fog" marks, and in order to discover the cause of it, tried to repeat by design what had occurred through chance. One of his experiments consists in looking for fully a minute at a coin, say a shilling, whilst it is held in the strong light of the dark-room window, then closing his eyes and drawing a yellow screen over the window to exclude the actinic rays. He now leans back in his chair and fixes his eyes on the centre of a fresh photographic plate, while keeping his thoughts fixed on the coin, and allowing nothing else to cross his mind. He keeps up this attitude by force of will for forty-three minutes, and on

NEW LAMPS.—FIG. 2.



A PORTABLE PROPELLER FOR BOATS.—FIG. 1.

developing the plate he finds the outline of a coin upon it. Another and still more interesting experiment, made in presence of a medical man and two other witnesses, consists in looking at a postage stamp in a strong light, then turning the eyes on a photographic plate, as in the case of the coin. Mr. Rogers seems to think that he has discovered the clue to a process of "photographing thought" and does not believe that the effect he has obtained is purely physical, or that pictures of the kind could be photographed from the eyes of the dead. There is certainly something uncanny and mysterious about his results, but they are too elementary as



A PORTABLE PROPELLER FOR BOATS.—FIG. 2.

yet to justify his theory. What seems plain is that the human eye can radiate light of itself, a fact rendered probable by other experiments, and illustrated by the glow of a cat's eyes in the dark or by the light seen in the eyes of some men—for example, General Gordon.

A Portable Propeller for Boats.

Our illustrations represent a screw-propeller which can be mounted on a small boat, so as to propel and steer it at the same time. It consists of a tube hinged at the stern of the boat like an oar for sculling, and containing a flexible shaft which transmits motion from a small electric motor to the screw. The tube is partially filled with oil as a lubricator, and the motor is worked from a battery in the boat. The motor, tube, and propeller, with the rudder attached, weigh only 35 lbs. for a boat 10 ft. to 18 ft. in length, and the battery weighs from 100 to 275 lbs., according to the speed required, which varies from three to five miles an hour. Obviously this device will be very useful to invalids as well as sportsmen, and it is by no means expensive.

Some Useful Novelties.

A sharpener for scissors, which can readily be used either in the home or the workshop, is among the most interesting of recently patented novelties. It would be difficult to give a verbal description of the strong and simple apparatus, but its action on the blade of the scissors is more that of a plane than anything else. Each blade has only to be drawn four or five times across the edge of the steel sharpener and the whetting is done. Especially to those whose work is of such a nature that their scissors are quickly blunted, this new sharpener should prove a great boon.—The "Flecto" Bookholder is another novelty which should meet with universal acceptance. It is made of brass, and its two arms are very ingeniously joined together so that they can be made to slide in or out, as is required by the size of the book in use. For invalids, and for all readers who do not wish to have their hands monopolised by the task of keeping the book's pages in their proper place, this new holder ought to be very serviceable.—The Ulster Clothes Drainer should be of interest to housewives in those districts in which clothes are boiled in a large pan over the fire. The drainer is made of zinc, and is suited in size to the utensils usually employed. It has a perforated bottom through which the water bubbles freely. The pan having been half filled with water, the drainer containing the soiled linen is inserted and the zinc lid is put on, until the boiling process is complete. The great advantage which the drainer offers is that one pair of hands is sufficient to lift the "whole boiling" of clothes, and afterwards to remove the already lightened pan.

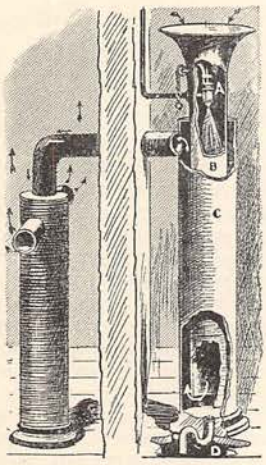
A New Art Process.

Professor Herkomer, the well-known artist, has brought out a new process in "black and white" art, which virtually enables the artist to prepare his own blocks for printing from. The drawing is made or picture painted on the silvered surface of a copper plate with a peculiar ink, invented by Professor Herkomer, which does not dry. A powder is then shaken over the surface of the sketch, which granulates the ink and makes it a conductor of electricity. An electrotype of the granulated sketch is then taken by the ordinary methods for use in

the printing press. The new process enables the artist to finish his work as it will appear in print, and dispenses with the intermediary of the engraver; moreover, it is well adapted for spontaneous, rapid, and original work.

A Water Ventilator.

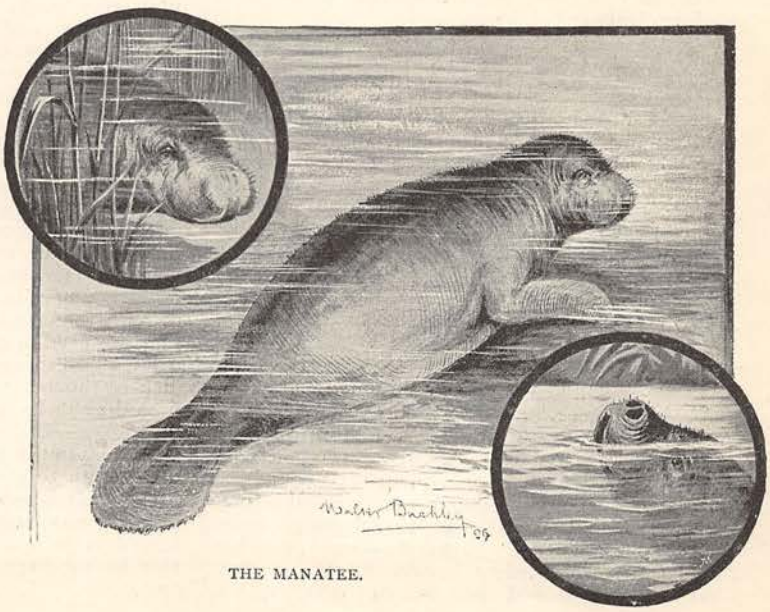
Our illustration represents a new mode of ventilating rooms by the ordinary town supply of water under pressure. The ventilator consists of an open-mouthed tube, B, enclosed in another, C, which communicates with the room to be exhausted of foul air or replenished with pure. A water-pipe of the premises is let into the tube, B, so as to deliver a spreading sheet of water downwards from the cock, A. In the case shown the rush of fresh air is drawn from the outside of the room. Water under a pressure of two or more atmospheres sucks air down the tube, B, allowing it to escape into the tube, C, and from thence into the room as indicated by the arrows. The water runs off by the siphon seen below, and can be used for other purposes. If dry or disinfecting air be required, the pans of drying material (such as cloride of lime) or of disinfectants (such as formol) can be inserted in the path of the fresh air after it has left the ventilator.



A WATER VENTILATOR.

The Manatee.

This strange-looking creature, now to be seen at the Zoological Gardens, belongs to a group the numbers of which are decreasing year by year. Manatees are found in and near the entrances of South American and African rivers that discharge into the Atlantic. They are quiet, harmless creatures, that feed below the surface on aquatic plants. They suckle their young, and their habit of holding the calves with their flippers and keeping themselves the while upright, or nearly so, in the water, is said to have given rise to fables about mermaids. In the upper ring the animal is seen below the surface, with the nostrils closed, to prevent the inflow of water; in the lower ring it is represented with the nostrils open, as it rises to breathe. Here also may be seen the pad-like expansions of the upper-lip, with which food is grasped, and then conveyed into the mouth by an inward motion of the whole lip. The flesh is used for food; the fat yields a limpid oil, employed as an illuminant and in cookery; and the hide is tanned into excellent leather—three valid reasons for the speedy extermination of the manatee.


THE MANATEE.

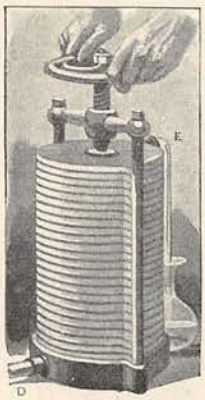
Aerating the Soil.

The roots of plants require a supply of oxygen, and hence a good soil should be permeable to air. Arable land in general consists of sand, clay, chalk, and humus or vegetable mould, and of these ingredients sand—even fine sand—is absolutely permeable to the air; but clay and chalk when wetted with rain, form an impermeable mass. The finer the soil the less permeable it is, owing, doubtless, to the clay and chalk more easily closing the interstices of the sand. Clay is, however, coagulated by salts of lime, and resists the action of rain. Hence, according to M. Deherain, Member of the Institute of France, and M. Demoussy, in a paper to the Academy of Sciences, Paris, the obvious remedy for land shown to be impermeable by the rain-water lingering in the furrows, is to add lime or chalk to it.

Andrée's Balloon.

Herr Andrée, who is to start for the North Pole in a balloon next summer, has engaged M. Lachambre, of Paris, to make it for a little over £2,000. The material for the envelope will be pongée de chine, a Chinese silk covered with indiarubber varnish, and so impermeable that if the gas had no means of escape but through the pores of the cloth, it would remain aloft in the atmosphere for three years. The silk will be two-ply in the lower and three-ply in the upper portion, and the network is to be covered with varnished silk to keep snow from lodging in its meshes. The balloon is to be properly tried by actual ascents before the

aëronauts leave for Spitzbergen, from the north of which they will start on their hazardous journey.



A NEW PAPER FILTER.

A New Paper Filter.

A filter of paper which is proving useful to chemists, perfumers, and others, is shown in our engraving. It consists of a pile of round sheets of filter-paper alternating with circular grids of tin, the whole being compressed by means of the screw seen above. The foul liquid is forced under pressure into the orifice, D, and flows out continuously in a purified state from the orifice, E. It has the advantage of being easily dismounted and cleansed.

"Loveday."

Miss Wickham's story with this title ran through our own pages so recently, that it is alike impossible and unnecessary for us to say anything about the story as such. Messrs. Cassell have now issued it in a single volume, with Mr. Gülich's illustrations; and those of our readers who enjoyed the story as a serial in CASSELL'S MAGAZINE, have now an opportunity of securing another copy of it in a separate and more portable form.

Scottish History for Young Readers.

No writer better fitted for the task of re-telling the story of Scotland for children's reading could be found than Mrs. Oliphant, and the dainty little volume of her "Child's History of Scotland," which Mr. Fisher Unwin sends us, will deservedly have many admiring readers who can no longer in fairness be called children.

"The Story of British Music."

Mr. Crowest deals in his latest book, "The Story of British Music" (Bentley), with the most romantic period of English musical history, a subject which is growing more and more popular every day. This volume—which, we understand, is to be succeeded by others, each complete in itself—includes the period of the wandering bards or troubadours, and carries the story onward to the commencement of the Tudor dynasty. While pleasantly written, the story is evidently gathered with care, and may be commended to all lovers of music and musical lore.

Some Useful Handbooks.

A handbook which is at once practical and concise, dealing with the subject of "Fretwork and Marquetry," is published by Mr. L. Upcott Gill. Its author is Mr. D. Denning, and his good advice is ably seconded by simple and intelligible diagrams, which make the book a thorough *vade-mecum* for amateurs. From the same publisher comes another excellent handbook on "Modern Magic Lanterns and their Management," by Mr. R. Child Bayley, who handles his subject so carefully and exhaustively that any student of the work with ordinary intelligence, should have little or no difficulty in mastering the manipulation of the apparatus described. Mr. Upcott Gill also sends us a new edition of Mr. Edward A. Downman's "English Pottery and Porcelain," which, in its enlarged and revised form, offers a wonderfully concise handbook for collectors and students of ceramics.

AMONGST FLOWERS. BEES. AND POULTRY.

APRIL.

THE weather varies greatly in this month of keen winds and bright sun. The greenhouse should be gay with flowers, azaleas and cinerarias in particular, and will require the giving of air cautiously. A bitter east wind is not helpful to plants in full blossom. As the sun gains power, increased attention will be needful in watering, the soil in the pots, especially if full of roots, quickly getting dry. Shade the glass if the sun is very brilliant, to keep the flowers fresh; they soon flag and lose colour in a bright light. Ferns do not need so much shade as is commonly supposed, unless Todeas (filmy ferns), but too much sun is hurtful. In the old-fashioned houses one sees dark green glass, under the impression that ferns require perpetually a dim light, but under such a covering as this success is impossible. Early April is a good season to re-pot ferns. A soil of loam, peat, and sharp silver sand is most suitable, and when re-potting is done at the time growth is starting one may divide the plants, if they are becoming too big or an increase of stock is desired. Sow seed of hardy annuals, and almost everything may be sown now, as sweet peas, candytufts, and a host of other plants that might be named if space permitted. Protect wall-fruit trees from keen winds. Plant potatoes, sow Horn carrots, cabbage, and cauliflower for use in the autumn months, and at quite the end of the month sow French and runner beans. Peas may also be sown now, and in the majority of gardens these are in great request.

Bees.—This is a busy time in the apiary; at least the most active season of the year is at hand. It is essential to have in the bar-frame hive the now popular comb-foundation, which promotes much greater yields of honey. Comb-foundation is made of thin sheets of wax embossed by the foundation machine to the natural shape of the base of the honey cells and supplies all the wax needed to form the comb. Where whole sheets are used, they are fixed firmly in the saw-cut of the top bars, and allowed to hang to within three-quarters of an inch of the bottom bar and a quarter of an inch from the side bars.

Poultry.—Unless the March sittings have turned out satisfactorily, sitting must be carried on during this month to provide pullets for that important work—winter-laying. Chicks will be making great progress now, and should, as they appear, be removed to the rearing ground, as the grass is preferable to buildings unless the land be very damp and cold.