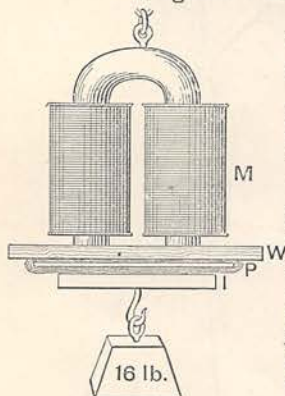


The GATHERER

An Illustrated record of Invention Discovery & Science

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.

Magnetic Photographs.



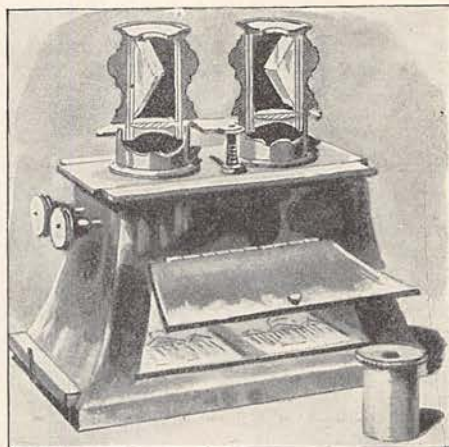
The latest surprise in the way of photography comes from the United States, and may be regarded as an offshoot from the remarkable discovery of Röntgen. Professor John S. Mackay has succeeded in taking photographs very similar in appearance to the Röntgen "shadow photographs" or silhouettes of the bones and hidden objects, such as coins in a

purse, without the use of light at all, but simply with a strong magnet. His arrangement will be understood from our engraving, where M is an electromagnet, capable of lifting 100 lbs., having a sheet of wood, W, over its poles, and beneath the board a sensitive photographic plate folded in black paper. If now an iron armature or "keeper"—that is to say, a bar of iron—be placed under the sensitive plate, next the film, and across the poles of the magnet, and the whole arrangement left for a period ranging from several minutes to several hours, a dark image or "shadow photograph" of the iron keeper I will be found on the plate when it is developed. In the particular case illustrated the armature sustained a weight of 16 lb. in its position below the sensitive plate. Professor McKay used Cranmer plates and eikonogen developer, and made his experiments in a dark room. The time of exposure could be shortened by rapidly interrupting the current with an automatic key. Keys, pliers, wire gauges, or any other paramagnetic object, can be substituted for the armature I and silhouettes obtained. Moreover, if the sensitive film be put next the poles of the magnet, and a sheet of iron nearly as large as the plate be used for the armature I, non-magnetic or diamagnetic objects placed on the film will yield silhouettes. In this way the Professor has taken

photographs of wire, foil, and gauze of copper, brass, platinum, magnesium, and other metals, which bear so close a resemblance to the hackneyed Röntgen pictures that it is needless to reproduce them. Professor McKay does not offer any elaborate theory of his remarkable result, but he seems to think that the poles of the magnet emit radiations capable of affecting a photographic plate, and he throws out the suggestion that shadow pictures obtained from long exposure of a hidden object to sunlight may be due to magnetic radiations from the sun. What is wanted at this stage is more experimental results rather than hypothesis.

An Inverting Stereoscope.

The accompanying figure shows a stereoscope which will save amateur photographers some trouble. When positive photographs are made for the ordinary stereoscope, the right image has to go on the left hand and the left image on the right hand; but this new instrument of MM. Charpentier and Gramont, by a simple arrangement



AN INVERTING STEREOSCOPE.

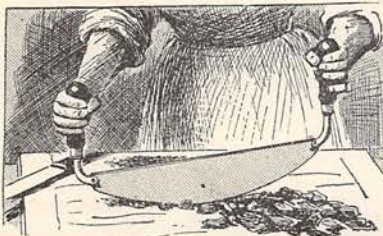
of prisms and lenses in the eye-piece, permits the effect of relief to be seen without making this inversion.

Nets and Insects.

It is well known that insects experience much difficulty in passing through nets, even those having meshes three or four times their size. Some have supposed their fear of nets due to a resemblance between the net and a spider's web; but M. Felix Plateau has recently shown that the difficulty lies in their eyes, which are more adapted to distinguish motions than form. An insect is evidently apt to mistake a net for a continuous transparent surface. To pass through the net it must alight on the meshes, or strike them, then crawl through the aperture.

New Knives.

Fig. 1 shows a new mincing-knife, which works without noise and with less labour than the older patterns. The operator grasps both handles and gives a see-saw or rocking motion to the blade,



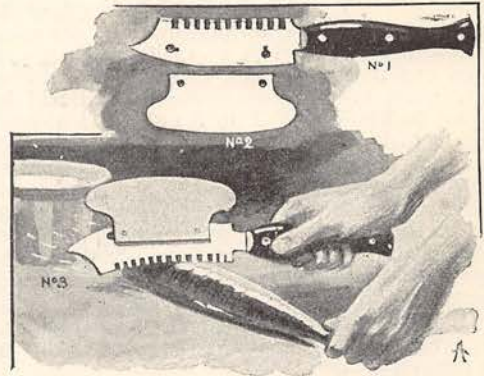
NEW KNIVES.—FIG. 1.

thereby mincing the meat. Fig. 2 represents a French fish-knife, where No. 1 is the knife proper, having a serrated back for scaling the fish, and No. 2 is a scale guard which can be fixed to the knife as in No. 3, or removed and used as a kitchen knife for various purposes.

The Art of Taking Out Stains.

BY THE AUTHOR OF "OUR HOME LAUNDRY."

There is one branch of laundry work of which the genus washerwoman is woefully ignorant. It is also one of which the house-mother should be perfect mistress. I mean the taking-out of stains. Mrs. Jones rubs a cake of soap over a brown tea-stain, or into a black ink-spot, with misplaced zeal. The alkali in her tablet turns the blot into a fixed stain at once. Now all stains should, if possible, be dealt with whilst wet. Without fail they should be removed *before* being sent to the wash. That is why a lady's delicate finger-tips and nicety of touch are more requisite at this stage of the art than in any other. Tommy has spilt a cup of tea; Mary has swamped a patch of coffee; the master has overturned a wineglass; baby has smeared the raspberry stew. What is usually done? The soiled tablecloth is rolled up at once to contract mildew, consigned to the clothes-basket, and sent, when perfectly dry (these accidents always happen at the beginning of a week!), to Mrs. Jones. Now



NEW KNIVES.—FIG. 2.

take the first misfortune. Wait only till breakfast is over, then put a bowl under the stain while the cloth is on the table. The brass kettle is, of course, boiling on its stand. Pour the water *through* the stain into the basin. You will be surprised to see how little damp will spread beyond the strained cloth. Still more astonishing is the magical way in which those tea or coffee stains disappear. A touch of the heater or flat iron, and, without removing your cloth from the table, it is as good as ever.

We all know how easily port wine-glasses topple over. Their very thin stems are made for the purpose, I think! There is nothing more aggravating than to see a stream of purple-pink fluid suddenly meandering over one's best lotus or lily pattern damask. Rub some salt in at once. After dinner manipulate as advised for tea-stains, or dip in boiling milk. I will not advise oxalic acid or powdered lime. If your cloth is left to dry and sent to the wash, Mrs. Jones will burn holes in it soon enough, and without my help. The above process removes fruit as well as wine stains. I am personally very fond of "slogging" ink. However, I do not *generally* do so over a table-cloth. My writing-table is covered with red American leather, in order to preserve its Morocco top and brass shield with inscription. All people are not so careful. If some ink has got on to a white material, rub it with salt while still wet. Cut a lemon in half (or even a squeezed rind will sometimes answer the purpose), rub it in well, and pour boiling water through to remove acid. Wash as soon as possible.

If a drawing-room table-cover of coloured wool is the recipient of a black stain, soak quickly and thoroughly in *warm buttermilk*. As the inky fluid tinges the milk, replace it with more until the liquid is left white. Much perseverance is needed, and patience; two "P's" without which no would-be-remover of stains can succeed. When all the ink is gone, pour hot water through the cloth, to eradicate an odour of sour milk; and, before it is quite dry, iron with a moderate heater. To remove a scorch, soak the linen in clear, soft, cold water for some hours. The mark will then easily rub off. Iron-mould is treated in the same way. Of all stains, perhaps that of mildew is the most difficult to deal with. It takes nights of exposure on a bleaching green or hedge, much

boiling, and some elbow-grease to get rid of it. Paint, if allowed to dry on overall or apron, must be put *bone dry* into a rapidly-boiling pot of water, one dessert-spoonful of paraffin added to every quart of the former when that liquid is boiling madly. For half an hour let the ill-used garment bubble and fizzle and squeak. Lift out by means of a wooden stick (iron will mould if used) into a basin of cold suds, and when cool enough rub well, rinse in several waters—the oil is of so tenacious a breed—and your stain will be gone. Some of these prescriptions sound troublesome. They are not really so. They only need one “P” added to the bouquet of two already presented—“PROMPTNESS” (use capitals, please, Mr. Printer) is the most necessary ingredient in the removal of stains.

An Auto-Tricycle.

The tandem tricycle which we illustrate is the best automatic or self-moving tricycle-carriage we have yet seen. It contains a comfortable seat for a lady and a back seat for a gentleman, who steers. The power is derived from a small petroleum motor, of the kind used in horseless carriages. It gives $2\frac{1}{2}$ horse power, and the tricycle runs at several different speeds varying from five to thirty miles an hour. The vehicle only weighs 400 lb., with a supply of petroleum sufficient for a journey of seventy-two miles. The Bollée tricycle has been a success in Paris, and will be very useful to those who have no need for a larger auto-car or horseless carriage.

Sub-irrigation.

A new method of gardening by irrigation beneath the surface of the soil has come into operation in the United States, and gives very good results. It originated in a desire to avoid the rotting of lettuce produced by watering the surface of the ground in which they are growing,

and it is found to yield lettuces of double the ordinary size. It is particularly applicable to greenhouses, and is carried out by a system of perforated pipes underground, which not only water the soil, but permit the air to pass freely through it and reach the roots of the plants.

Time by Telephone.

In America the telephone is now employed to give the correct time to subscribers, and even to wake them up in the morning! The operator at the exchange “rings up” the subscribers who desire to be waked at a certain hour. For this purpose it is, of course, necessary that the telephone apparatus and call bell should be placed in the sleeper's bedroom.

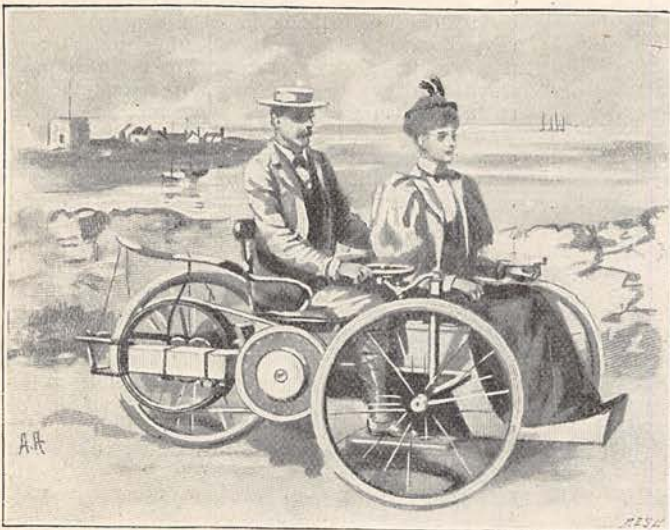
A Tell-tale for Boilers.

Boilers are apt to explode when there is an insufficient supply of water in them, owing to frost or some other cause stopping the supply pipe, and the “tell-tale” will be useful to householders. The contrivance is simply fixed in a vertical position in the top of the boiler, apart from the flow or other pipes. Before lighting the boiler fire the cock of the tell-tale is turned on, and if water flows from it the boiler is filled; but if not, there is some stoppage in the pipe and the fire must not be lighted.

Can Dogs Laugh?

To smile and laugh is generally regarded as characteristic of man, and man only; nevertheless it has been observed that certain animals, more especially the dog, show an expression of the face distinctly resembling a smile, if not even a laugh. Gratiolet, a celebrated French physiognomist, admits that dogs have what he calls “the smile of the eyes,” which is produced by a slight elevation of the external corners of the eyes.

The smile of the mouth—that is, a movement which raises the corners of the mouth—he regards as peculiar to mankind. “Maida,” the famous deerhound of Sir Walter Scott, had a habit of showing her joy by what might easily be described as a smile or a laugh. In fact, this grimace or smile is common enough amongst dogs, but it rarely manifests itself in a striking manner. When it does, the upper lip is drawn back, exposing the canine teeth, as though the dog were going to growl, the ears are thrown back, and the expression of the face, far from being one of irritation, is, on the contrary, one of joy or pleasure. Scotch collies are rather given to smile at comical sights new to them, as well as at their masters now and then. It certainly does not require a surgical operation to get a joke



AN AUTO-TRICYCLE.



THE PUFFING HOLE OF IONA.—FIG. 1.

into a collie's head. The present writer had a very intelligent little collie which used to smile and look up to his master with a knowing air every time he saw a travelling bear, or even a goat, or at almost any odd and unfamiliar creature. The expression of his face can only be rendered by the word "smile," the lips being drawn up at the corners and the eyes betraying conscious amusement—if not even an arch or roguish look. The Vicomte d'Aiglun relates that one of his friends has a dog which, at the end of several months, learned to laugh with a spaniel, his companion; and as a further proof of the force of imitation, he mentions the case of a small Havanna dog which has acquired the habit of licking his paws and washing his face like a cat of his acquaintance.

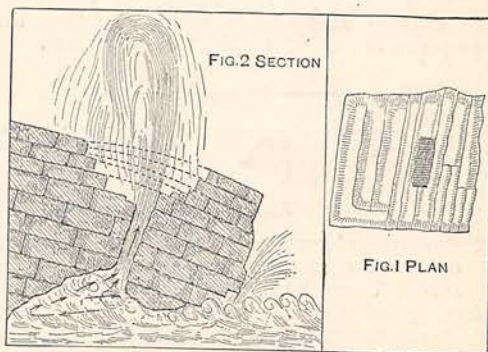
Puffing-holes.

"Puffing-holes" or "spouting-caves" are found on several coasts, notably on the island of Iona, on the west coast of Scotland; at Kilkee, near the mouth of the Shannon, and elsewhere in Ireland; at Flamborough Head and Whitby in Yorkshire, and in the Mauritius. Fig. 1 represents that of Iona in full blast, and Fig. 2 is a section through that of Kilkee, which explains the action of the water. When the sea is rough the waves force the water upward through the vent-hole in a column of spray resembling a geyser, and with a boom like the firing of artillery. Obviously these puffing-holes are gradually tending to destruction. The falling water hollows out the rocks above, and thus widens the vent-hole, thereby abolishing the jet and producing a kind of bowl like the "boilers" of Auchmithie, a hollow in a field, communicating with the sea by an underground channel near Arbroath.

Luminous Clouds.

Clouds which are self-luminous may be seen high up in the sky, especially during the summer months, in all parts of the world. Their origin is rather a mystery, but it appears from recent observations that their height varies very little

from 51 miles, and it seems probable that their luminosity has an electrical origin. Perhaps it is due to a fluorescence of the vapour, or rather crystals of ice produced by electrical waves in the higher atmosphere, or by what we now call Röntgen rays. During a recent thunderstorm near London, a cloud was seen by Mr. J. Munro, C.E., to become luminous all of a sudden. At first the



THE PUFFING HOLE OF KILKEE.—FIG. 2.

colour was a bright red, which faded to a brownish-red, and remained so for a long time whilst the storm went on. The effect is unusual in thunderstorms, and partakes more of the nature of an auroral display.

A Useful Music Manual.

Nowadays the piano is a much-used, and, alas! much-abused instrument, and manuals of instruction in the art of pianoforte playing are being poured forth from the musical press in bewildering profusion. Amongst them all, works of practical value are comparatively rare, and this fact justifies us in calling attention to Dr. Gordon Saunders' practical treatment of "The Art of Phrasing" (Hammond & Co.), which is far and away the best exposition of the subject for the ordinary student

that we have seen. Even the qualified teacher of music will find in its pages many profitable hints and much valuable information.

"Royal Academy Pictures," 1896.

By the time this number of the MAGAZINE reaches the bulk of its readers the galleries at Burlington House will be closed for the season. But the best pictures of the exhibition are still to be seen in the handsome volume of "Royal Academy Pictures" published by Messrs. Cassell. In its pages you may see the pictures at your leisure, without any crowding, and with no fear of "Academy headache."

Some More New Books.

We are all becoming specialists, even in our pastimes, nowadays. The old-fashioned garden where one grew "a little bit of everything" is quite out of date, and each gardener devotes his attention to some one plant or flower. So many of our readers will be glad to welcome a handy little manual on "Carnation Culture for Amateurs," written in a practical style, by Mr. B. C. Ravenscroft, and published by Mr. Upcott Gill.—Our old contributor, Mr. F. M. Holmes, has written an interesting and informing work on "Miners and their Work Underground" (Partridge), which deals with the life of the workers in mines, both at home and abroad, for the homely coal and the precious diamond.—Messrs. Cassell have just issued a new edition of Mr. Barry Pain's amusing volume of sketches and readings to which he gave the appropriate title of "Playthings and Parodies."

AMONGST FLOWERS, POULTRY, AND BEES.

AUGUST.

IF Carnations have not yet been layered, do so at once. It is of great importance to get the rooted layers into their permanent quarters before the autumn is far advanced. This is a good time to commence making a lawn. Well break up the land, and if necessary manure it, then secure a firm surface by well rolling the ground. This done sow the seed, which should only be purchased from a thoroughly good house. Many lawns are unsatisfactory, not from indifferent preparation of the ground, but from bad seed. A word of advice may be given, too, about picking off weeds from the ground before making the surface firm. A little attention at that time will save much after labour. Bud Roses if not already done, and if we have a severe winter, these late buds will probably suffer less than the earlier ones. As soon as possible in the month increase the stock of tufted Pansies (Violas). In the majority of cases plenty of short stubby shoots will be found in the centre of the plant. These may be either dibbled in a frame of light, leafy soil, placed in a cool shady spot, or if the garden be without such a luxury, a little patch of ground may be prepared, but shade is essential. Beware, too, of slugs, which are fond of pansy shoots.

Early Apples, Plums, and Pears must be gathered as they ripen, and handled with care. Watch for Jargonelle Pears, which go quickly past their best. This delicious fruit should be, so to say, eaten off the tree.

Sow seeds of Cauliflowers, Tripoli Onions, Spinach, Lettuce, and Mustard and Cress. Thin out freely autumn-sown crops. Thick sowing means weakly growth. Earth-up Celery, and remove all surplus growths from Tomatoes, which require all the sun possible.

POULTRY.—Give the birds a good run. The bulk of next winter's eggs must come from the March pullets. They must not be forced on, otherwise they lay before wanted to, but this does not mean neglect them. We do not want backward birds when a full egg-basket is required. If the birds are out of condition, give a feed early in the day, then one of hard grain in the afternoon. Remove all cockerels, as they harass the hens.

RIPENING HONEY.—Before the honey is stored in the cells, and sealed over with wax cappings, a ripening process takes place. Superfluous moisture is evaporated in a large measure in the hive, and when this is finished the cells are closed. The honey is permanently stored in the upper cells, and if more honey has been collected through the day than can be evaporated during the night, it is not stored in these compartments. When all the cells are in use, the bees return and find no place to put their store. It is then converted into wax, added to the cells, and swarming considered. If the unripe honey be extracted, this undesirable swarming is prevented and the work of the bees unhindered.

SERIAL STORY COMPETITION.

AWARD.

A LARGE number of MSS. came in for this Competition, which closed on June 1st. The Adjudicators report that, although the average was good, only one story stands out from all the others as being worthy of a prize. Consequently, the Second Prize has been withdrawn (under Rule 6), but

The FIRST PRIZE OF FIFTY POUNDS has been awarded to

CATHERINE M. RAMSAY,
Wylorby Rectory,
Melton Mowbray,

to whom a cheque for this amount has been forwarded.

FAVOURABLE MENTION is accorded to the following (given in alphabetical order):—

H. CUTHBERT, Hopday;
A. K. FORBES, Ladybank, N.B.;
M. HOPPER, Holland Park, W.;
H. E. W. MILLS, Falmouth;
W. SEYMOUR, Chesham;
C. A. SMITH, Southsea.

Unsuccessful competitors are reminded that their MSS. will be returned to them on receipt of application (accompanied by postage) within one month of the publication of this Award.