

THE GATHERER:

AN ILLUSTRATED RECORD OF INVENTION, DISCOVERY, LITERATURE, AND SCIENCE.

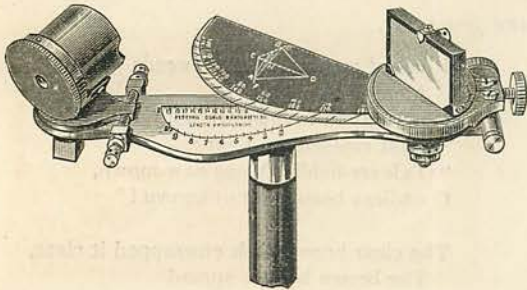
Correspondents are requested, when applying to the Editor for the names and addresses of the persons from whom further particulars respecting the articles in the GATHERER may be obtained, to forward a stamped and addressed envelope for reply, and in the case of inventors submitting specimens for notice, 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.

A Pencil Suspender.

The little device for suspending pencils which we illustrate herewith is meant to be worn as a locket either in the dress or on the watch-chain. The pencil is hung by a cord, which, after being drawn out for use, flies back of its own accord like a spring tape.

A Face in the Milky Way.

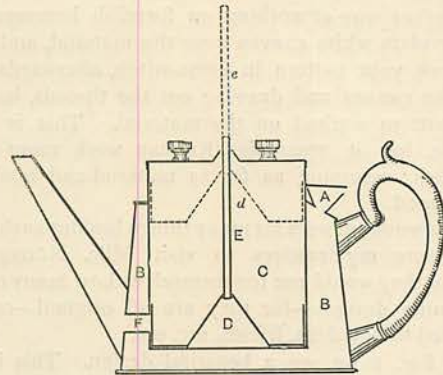
The broad face in the moon is familiar to most of us, and several astronomers have fancied they could see other faces in portions of the lunar surface magnified in the telescope. Dominic Cassini, Astronomer to Louis XIV., for example, discovered the profile of a beautiful woman with flowing hair in Cape Heracles on the Mare Imbrium; while, curious to tell, Schroeter, another observer, found the likeness of an ugly man in the same spot. A photograph of the Sagittarius region of the Milky Way, by Mr. Barnard, contains within the white circle a shadowy visage, which the observer is requested to discover for himself. It is something of the Dickens type, and in more classical and superstitious days it might have been regarded as the apotheosis of the illustrious novelist. The eyes are formed by two dark areas with whiter specks, and the lock of hair on the right hand by a stream of stars. The face is recognizable in other photographs of this region.

**A New Curve-Ranger.**

The apparatus which we illustrate is an adjunct to the surveyor's outfit, intended for ranging the curves of roads, railways, and so on. It is based on the principle of the twenty-one propositions in the Third Book of Euclid: namely, that the angle in the segment of a circle is constant. We need not enter into the details of the instrument, especially as they are somewhat technical; but we may add that the only adjustment it requires is the setting of the eye-piece.

An Anti-Tannin Teapot.

Tea without tannin is a widely felt want, but one that is not easily provided for, as many of us know to our cost. A new teapot has just been devised to supply this need, and it is illustrated in our diagram,



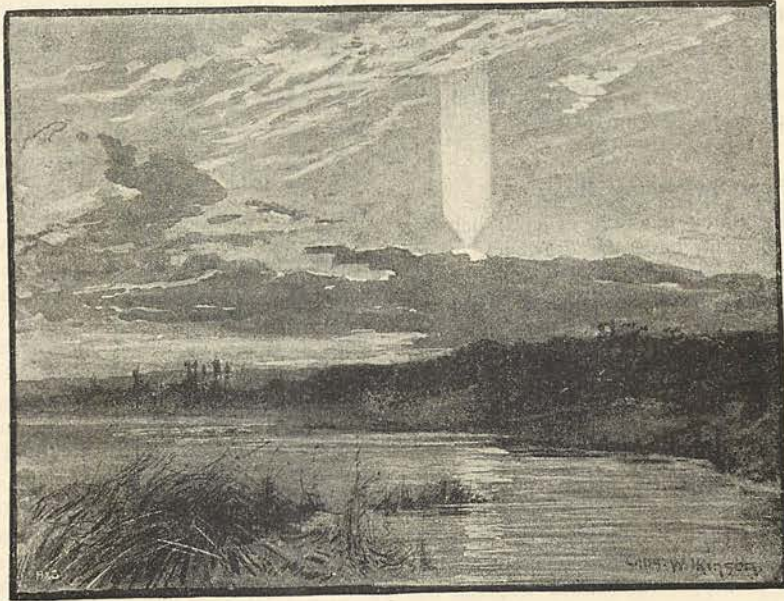
which shows a section through one of the new utensils. It will be seen that the new teapot consists of two cylinders, one enclosing the other. In the inner, C, there fits a fine strainer-cage, D, which is raised or lowered by means of a rod, E, passing through the lid. Into this strainer the tea is put without any water. Boiling water is first poured into the outer cylinder, B, by means of the little orifice, A, just against the handle, and the strainer-cage being then lowered to the bottom of the cylinder, the heat communicated to the tea from the outer cylinder causes the leaves to open, and thus facilitate a speedy and complete infusion. Two or three minutes will serve to effect this, and then the inner cylinder may be filled with boiling water. A further three or four minutes will complete the infusion, and the strainer-cage, carrying the tea-leaves, should then be drawn up into the lid of the teapot to the position indicated by the dotted lines and the letters *d*, *e*, by means of the rod. The result should be a supply of good tea, passing to the spout, F, free alike of tea-leaves and tannin.

A New African Fibre.

Attention has been called in the March number of the *Kew Bulletin* to a new source of fibre from West Tropical Africa. This fibre is obtained from the young pinnae or leaflets of the African Oil Palm (*Elais guineensis*). Scarcely anything has hitherto been known out of the Colony concerning it, though it is extensively used locally for making fishing-lines and for other purposes where great strength and durability are required. Though the fibre as prepared by the natives

is very fine and strong, it is extracted in such a laborious and tedious manner as to prohibit its coming into European commerce. A well-known firm of fibre brokers say that it has occasionally come into their

minutes after the sun sank out of sight, then gradually died out. The cause of the phenomenon is not well understood by meteorologists; but some think it is part of a halo round the sun. Its resemblance to an



THE SUN PILLAR.

hands in very small samples for the last fifteen years, too small indeed to make any experiments, and though it has been stated by spinners to be too hard and gritty to spin readily, they are inclined to think this view might be modified with sufficient material to test it practically; and if really spinnable it would realise perhaps from £50 to £60 per ton in London. The Assistant Colonial Secretary at Lagos, however, says that a hard day's work is counted well-spent on the production of six ounces of fibre from thirty-six pounds of the raw material. Estimating the value of labour to the native at not more than threepence a day, and leaving out of consideration the time expended in collecting and sorting the leaves in the forest, the actual cost of this material to the producer cannot be calculated at less than £75 per ton.

The Sun Pillar.

The sun pillar is a vertical beam of light rising from the rim of the sun as it is setting or rising. It has usually a pointed end, which is sometimes uppermost and sometimes lowermost, as in the display represented in the figure, which was observed by Miss Annie Ley, of Lutterworth, on March 5th last. The sun was setting at the time and the disc was partially hidden behind a cloud-bank. The column of light was very brilliant, especially near the sun. It rose to an elevation of some 5° , and was about the same width as the solar disc. The point rested on the upper rim of the disc, and was of an orange-red colour, which merged into the yellow-white of the pillar. The effect lasted some

minutes after the sun sank out of sight, then gradually died out. The cause of the phenomenon is not well understood by meteorologists; but some think it is part of a halo round the sun. Its resemblance to an

A Gas Blender.

The device illustrated herewith is intended to augment the illuminating power of a gas flame, and is a small disc of tin fixed to the burner as shown in Fig. 1. It

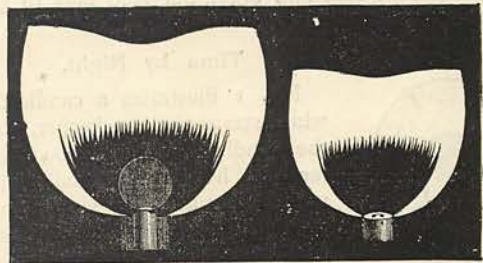


FIG. 1.

FIG. 2.

assists the mixture of air with the gas and also heats the latter, producing thereby a greater spread and brilliancy in the flame. Fig. 2 represents the jet from an ordinary Bray's union burner, and Fig. 1 that from the same burner provided with the blender. The difference between the two lights is considerable, and the blender producing it is very inexpensive.

Bark Cloths.

A specimen of the bark cloth prepared by the natives of Uganda has been added to the Botanical Museum

at Kew. The material is the inner bark of a species of *Brachystegia*, belonging to the natural order *Leguminosæ*, which grows in tropical Africa. The bark is boiled and beaten out into cloth, then made into kilts, and other articles, such as canoes, bags, and ropes. We may also mention that specimens of the fibres and cloth formerly made from the Spanish broom or "genista," by the peasants of Lodève and Languedoc have been received at Kew. The industry is dying out, but still lingers on in these days of cheap prints among the remote hamlets of the Cevennes.

A New Swimming Buoy.

The ordinary swimming bladders or cork belts for teaching people to swim have the drawback of not being graduated; and hence the new device of seven sealed tubes filled with air and strapped to the chest. Tube after tube is removed as the learner gains proficiency in the art of supporting himself and moving in the water, until at last he is able to do without any.

Electro-Magnetic Repulsion.

Professor Elihu Thompson has discovered that when a copper ring is placed over the poles of an electro-magnet excited by powerful alternating currents of electricity the ring is forcibly repelled upwards against gravity. A plate of copper introduced between the poles and the ring acts as a screen and cuts off the repulsion. A silver coin placed between the poles of the magnet is held in air by the attraction; but a base coin drops down because it has not sufficient electric conductivity. A glass vessel containing a copper ball floating in water is placed on the poles and a sheet of copper inserted to screen off half of the repulsion. The ball partly exposed to the other half begins to rotate. A glow lamp supported in the water on a wooden float surrounded by a closed coil of copper wire is seen to light up and rise in the water. Similar effects are obtained with zinc and brass, but lead fails to give them.

Time by Night.

Fig. 1 illustrates a candlestick which serves as a timekeeper, while the candle produces a good light for nine hours. The dial is illuminated so as to be visible from any part of a room, and the time can be read even without raising the head from the pillow. The mechanism by which the Palmer candle, burning at a steady rate, imparts movement to the hand on the dial is of a simple character, not likely to get out of order, and it begins to act when the candle is lighted. Fig. 2 shows a gas night-

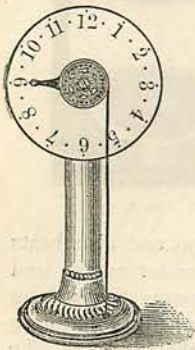
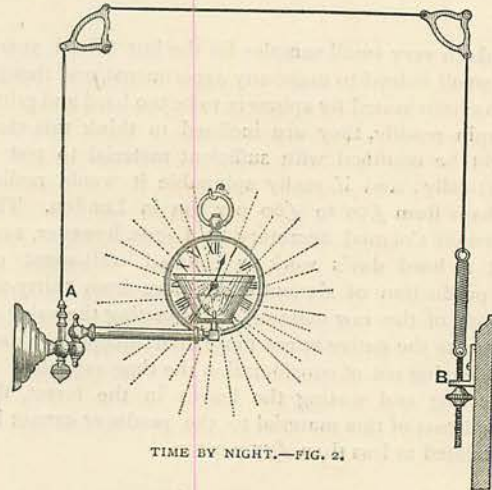


FIG. 1.

light which has the advantage of being controlled by a bell-pull arrangement, A, B, so that a person in bed can turn up the jet or extinguish it in a moment. The light also tells the time by hanging a watch beside it.

Making Sand Musical.

Certain sands of Studland Bay, Eigg, the Jebel Nagous of Suez, and the Hawaiian archipelago, emit a musical note on being disturbed by the wind, or the foot of the traveller, and Mr. Cecil Carus-Wilson has long given his attention to the phenomenon. His theory is that the grains of sand in rubbing against each other produce crepitations which, in the aggregate, amount to an audible note, and he thinks that if the grains are dirty or rough, and mixed with fine grains the effect will be marred. In proof of this theory he has been experimenting, and has not only succeeded in enhancing the quality of the note obtainable from specimens of well-known musical sands, but has also elicited a note from sands not naturally sonorous, by carefully cleaning and sifting the grains, so as to get smooth rounded surfaces, and a certain uniformity of size. The polished interior of a porcelain or china cup is favourable to the production of the note, the sand being placed inside and struck. His method of treating the sand is to sift it in a sieve to eliminate the finer grains, to roll it down an inclined plane of frosted glass to separate the round from the angular grains, and to wash the selected grains in dilute hydrochloric acid in order to clean them. After this treatment the sand will probably be musical if placed in a glazed vessel, but there are doubtless some sorts which will continue to be mute.



TIME BY NIGHT.—FIG. 2.

The Properties of Boron.

Having obtained pure boron, M. Moissan, the well-known French chemist, has lost no time in studying its peculiar properties. The density of the substance is 2.45. At the temperature of the electric arc it is infusible, although platinum, quartz, and other refractory materials melt and run like wax. When it is consolidated by great pressure it possesses a resistance to the passage of electricity which is much higher than that of sulphur. In air it inflames at a temperature of 700° C., and when heated in a current of oxygen it gives out a green light so dazzling that the eye cannot support the splendour. At a temperature of 620° C. it combines with sulphur, and in the electric arc with carbon,

forming borate of carbon. Iron and aluminium combine with it at very high temperatures; but silver and platinum not at all. A mixture of boron and oxide of copper warmed in a tube of glass develops a heat so intense that the apparatus is at once melted. A simple friction is sufficient to detonate a mixture of boron and fluoride of silver.

A New Fruit Gatherer.



Our illustration shows an apparatus which has just been devised to facilitate the gathering of delicate fruit which happens to be so situated as to place it out of reach by means of a ladder. The brass cups on the head—like a small pair of cymbals—are opened by a cord which passes down the long handle; and as soon as this cord is slackened the indiarubber ring just below the cups will pull them together, and so grip the fruit, but so slightly that it will not bruise or damage it. By placing the ring in different grooves provided for that purpose, a varying strength of grip is secured.

Inflammable Buttons.

Professor Boys has recently drawn attention to the fact that buttons which explode are now manufactured by some persons ignorant of chemistry. A lady of his acquaintance while standing near a fire suddenly found herself enveloped in smoke. Her dress had caught fire, and the ignition was traced to a place which had been occupied by a large fancy button. The button had disappeared, and Professor Boys subsequently experimented with a similar one, which vanished in smoke and flame when exposed to heat. The button smells strongly of camphor when it is rubbed on a cloth, and it may be recognised by this test.

The Olfactometer.

At a recent meeting of the Academy of Sciences, Paris, M. Charles Henry exhibited an olfactometer for

testing the smelling powers of different persons. It consists essentially of a glass stem, which is dipped into an odoriferous liquid and more or less of it inserted into a paper sleeve. The odour diffuses through the paper and becomes sensible to the olfactory nerve. As the rate of diffusion is known, the quantity of odorous vapour in a volume of air can be told. M. Henry finds great differences of smelling power amongst people; but, in general, it is possible to detect from $\frac{1}{1000}$ to $\frac{1}{10000}$ milligramme of ether per cubic centimetre of air; but, as a rule, the more agreeable the scent, the greater is the proportion required to produce an effect on the nerve.

The Blueness of the Sky.

According to observations made at Montpellier, the sky of Europe, speaking generally, is of deepest blue in winter, and palest blue in summer, and of intermediate shades in spring and autumn. With regard to each day, it is bluest in the morning, and palest during the hottest hours. Towards evening it deepens again, but not to the same degree as in the morning. We may add that an English meteorologist has also shown that there is most cloudless sky in the south of England during the summer months, least during the winter, and an intermediate amount in spring and autumn.

Another Cab-Fare Indicator.

To avoid disputes about fares in cabs, several indicators of the distance travelled and the fare have been brought out in Paris and London. One of these consists of a mechanism actuated from the axle of a wheel of the cab and in its turn working the indicator, which is placed in view of the traveller. The dial of the indicator is divided into twelve parts representing miles, and the hand points out the number travelled. The fare is also marked on the dial, and by a modification of the apparatus the money taken can be recorded on a disc.

Cattia Edulis.

The leaves of the *Cattia edulis* have been used for centuries by the Abyssinians and Arabians to keep up their strength in the absence of food. They are either chewed or infused like tea, and a French experimenter, M. Leloups, has confirmed the report of their sustaining virtues. The tincture, as well as the infusion, produces wakefulness and banishes fatigue. The plant is a shrub with olive-green lanceolate leaves, and flourishes in the Yemen, Arabia, and in Africa, between 15° north and 30° south latitude.

In The Days of Persecution.

Miss Kate Sizer, who has been a frequent contributor to this Magazine, is the author of a story of the days of Queen Mary which is published by Mr. C. H. Kelly under the title of "Dickon O'Greenwood; or, How the Light Came to Lady Clare." It is an interesting picture of village life in those far-off days, to which special point is given by the fact that the author lived for some time in the district which she describes. The village hero is taken prisoner for his exhibition of

Protestant zeal, and is carried before Bishop Bonner. How he fares with that famous prelate, and how his escape is ultimately brought about, and the good effect which his steadfastness produces are told, and told well, by Miss Sizer.

A Translation.

Much has been heard of late of Pierre Loti, the French naval officer whose success as a writer has won him admission to the French Academy. To English readers his work is comparatively unknown, so more than usual interest attaches to Mr. T. P. O'Connor's translation of "The Book of Pity and of Death," which has just been published by Messrs. Cassell. The author's own preface explains that the book is more his real self than anything he has yet written. There is not much in the book which reveals the author's calling; but as a revelation of the peculiar bent of his mind and the great fund of pathos he possesses, the work is very interesting.

Two New Stories.

The two most recent volumes of Mr. Fisher Unwin's quaint Pseudonym Library are "Heavy-Laden," by a German author, Ilse Frapau, and "Green Tea," which is a characteristically American story. "Heavy-Laden" is only the first of two stories which make up the volume. The scene of each is laid in Hamburg, and the forcible way in which the characters are drawn cannot fail to commend the book to English readers.

"Green Tea" is strong in its plot; but some of its incidents are such as none of our readers would approve.

Books for Everyone.

And first for schools. "Round the Empire" is a new Reader which has just been published by Messrs. Cassell, and of which Mr. G. R. Parkin is the author. Lord Rosebery contributes a preface to the book, and sets the seal of his approbation upon it and its aim, which is to bring a clearer and a more accurate knowledge of our own possessions and dependencies within the reach of all scholars. Brightly written and brightly illustrated as it is, the book ought certainly to achieve this most desirable result. For travellers, and especially in view of the coming holiday season, "The Official Guide to the Great Eastern Railway," just issued by the same publishers, cannot fail to be of interest. The Harwich route to the Continent grows in popularity, and so many more English people visit the Low countries and the Rhine than used to be the case, that information concerning this route, as well as those to the east-coast watering-places, ought to have a widespread interest. One of the recently added volumes to Cassell's National Library is an admirable selection of "Poems from Wordsworth." Within the comparatively narrow space of such a volume no selection can be more than representative, but this is so to a high degree, and its handy form and neat binding ought to win its way for it.

HOUSEHOLD MANAGEMENT COMPETITION.

AWARD.

THE judges have reported that the eighty manuscripts which were entered for this Competition were of unusually high quality, and rendered the task of adjudication more difficult than usual. A number of otherwise good papers were disqualified by reason of undue length, and several competitors had neglected to comply with the regulations in other respects.

The Prize of FIVE GUINEAS is awarded to

BESSIE E. DUFFETT,
Meadvale,
Redhill.

We hope to publish the successful paper in the MAGAZINE in due course.—Next in order of merit were two papers by the following competitors:—

| <i>Name.</i> | <i>Address.</i> |
|-----------------------|-----------------|
| GRIPPER, A. J. | Chelmsford. |
| RIDER, LUCY | Kensington, W. |

to whose papers HIGH COMMENDATION is given; and at the same time thirteen other competitors receive HONOURABLE MENTION:—

| <i>Name.</i> | <i>Address.</i> | <i>Name.</i> | <i>Address.</i> |
|------------------------------|-----------------------|--------------------------|----------------------------|
| ARNALL, B. M. | Stoke Bishop. | MARRIS, NORA M. | Moseley. |
| CASSIN, FRIEDA | Antigua, West Indies. | PETTIT, LILIAN | Port Elizabeth, S. Africa. |
| CHEYNE, C. | Belfast. | REEVES, MAUDE E. | Potters Bar. |
| EVANS, Mrs. | Westward Ho. | WALLACE, ISABELLA | Clapton, N.E. |
| FENNELL, EMILY E. | Wakefield. | "WYVERN" | Kensington, W. |
| JENKINS, CHARLOTTE C. | Kimbolton. | YATES, LUCY H. | Calais, France. |
| MAITLAND, Mrs. | Bedford. | | |

Unsuccessful competitors are requested to apply for the return of their MSS. as early as possible. All applications should be accompanied by a stamped addressed wrapper for the MS.