

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.

The English use of Lagos Bass.



About forty years ago one of the most important discoveries in connection with broom and brush making was made in the forests of Brazil, which resulted in the introduction to British trade of Piassava or bass—a substance that for a long time was supposed to be whalebone—but which in reality consists of the woody fibres from the sheathing

bases of the leaf-stalks of two distinct palms, one from Bahia known to botanists as *Attalea funifera*, and the other from Para known as *Leopoldinia Piassaba*. For some years past this substance has been getting scarce, and all sorts of things have been improvised, not only as substitutes but also for mixing with true bass. The most important discovery in this connection, however, and one that bids fair to equal, if not to surpass that of real bass has recently been made in Lagos, where the leaf-stalks of the bamboo palm (*Raphia vinifera*) are cut off and the long elastic fibres of which they were partially composed are pulled out, made into bundles and shipped to this country in increasing quantity for brush making. "Lagos bass," as it is called, not only fetches a high price in the English market, but the supply is practically inexhaustible, for the trees need not be cut down to obtain the fibre, and further they can very easily be extended by a system of planting—and many other palms in various parts of the world which produce a thick leaf-stalk would probably furnish a similar material were they examined for this purpose.

Drawbacks to the Use of Aluminium.

The lightness of aluminium has induced the German Emperor to decree its use for portable apparatus, such as canteens, in the German army, and it seems to be well adapted for the fittings of cameras, surveying instruments, and so forth. Nevertheless it has certain drawbacks which ought to be pointed out. M. Le Roy, a French chemist, has recently shown that pure aluminium (containing 95 per cent. of the metal) is attacked when cold by sulphuric and nitric acids.

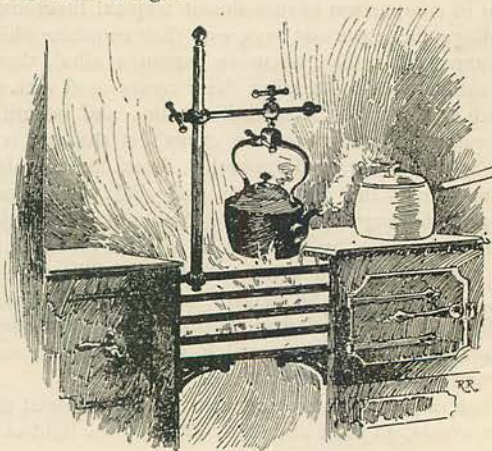
Herren Lübbert and Roscher, two German chemists, also find that it is to a certain extent dissolved in boiling water, and should not be employed in cooking-utensils, as the dissolved metal may affect the viands. It is also attacked by preserves, pickles, and acids in presence of table salt. Acetic, citric, and tartaric acids, Bordeaux and Moselle wines, and even infusions of tea or coffee attack the metal, hence the application of the metal for army canteens is inadvisable. Carbonate of soda, soap, phenol, salicylic and boric acids, also injure the metal. Gilding or silvering the surface would, of course, overcome this drawback, but there is no good process for electroplating aluminium.

Red Water.

We sometimes hear of "red snow," such as that which covers the crimson cliffs which Sir John Ross saw on the south-west coast of Greenland; and old records, like the annals of Ireland, speak of water being turned into blood. Some have supposed the last phenomenon to be caused by the reflection of a red aurora, but it is more probable that, like the red snow, it was due to a minute organism. Not long ago the water of Port Jackson harbour, Sydney, became the colour of blood, and on investigating the matter Mr. Thomas Whitelegge found the colour produced by myriads of a species of *Glenodinium*, which had killed fully one-half of the shore fauna.

A New Kettle Hanger.

The woodcut illustrates very clearly a new crane or holder for kettles. It consists of an upright standard which is clamped to the bars of the grate, and of a horizontal arm sliding on the standard and carrying another sliding hanger for supporting the kettle. The arm can be made to swing like the old-fashioned crane if required, and a simple gliding hook may be substituted for the hanger.





A COMBINED COUCH AND SETTEE.—FIG. 2.

A Combined Couch and Settee.

The couch shown in the figures is the invention of Lieut.-Colonel Davy, and has the advantage of combining in itself a sofa, two chairs, and a small table or cup stand. Fig. 1 represents it with the chairs and

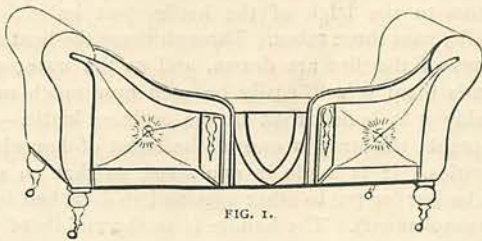


FIG. 1.

table folded up, making the couch alone; and Fig. 2 with the chairs opened out, and the table spread between them. The combination is, of course, made in different styles to suit a variety of tastes.

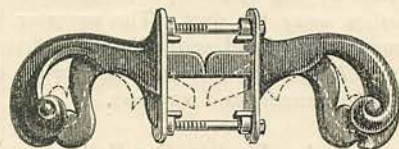
Living Greece.

Many people have an idea that both Greek and Hebrew are dead languages; but as a matter of fact they are living tongues. Hebrew more especially is still the language of the Children of Israel, wherever they are found, and it has been brought up to date by the invention or assimilation of scientific and other modern terms. Greek, too, as spoken by the people of Greece to-day, is nearly the same as the Greek of the classics. According to a recent paper by Professor Blackie, read before the Royal Society of Edinburgh, Greek has altered very little since the time of Corais. The first thirty-one verses of the Gospel of St. John, as published at Athens in 1855, contain only nine departures from the classical type; whereas the corresponding portion of the Romaic version, published 200 years

ago, contains twenty-eight. In the higher walks of Greek literature, this purity of style is very marked. In thirty-one pages of Tricoupis' "History of the Greek War of Independence," published in London in 1853, there are only fifteen deviations from the standard of Ancient Greek, while in two chapters of Paspatis' "History of the Capture of Constantinople by the Turks," published at Athens in 1890, there are only ten. The standard chosen by Professor Blackie for his comparison, is that of Plato, Xenophon, Diodorus, Lucian, Polybius, and Chrysostom. In the colloquial Greek of common life, there are of course far more deviations from the standard, but even in this there are very few words borrowed from other tongues, and the accented syllable still remains as it was fixed by the Alexandrian grammarians. Recent travellers have also shown that the old Greek race continues in many parts of Greece in tolerable purity, despite the vicissitudes of conquest. Types of face and form are found which fairly startle the tourist by their resemblance to the marbles of the Acropolis or Phigalea. The fair hair and florid cheeks of the children are a proof of their northern extraction, and bear out the tradition of a Hellenic migration from the north or north-east.

The Trigger Lock.

This new lock or latch for doors, which has been adopted in the palace of the King of Sweden, is neat



as well as convenient. The engraving shows the lock complete as fitted to a door, with trigger handles and

bolts on each side. The dotted lines indicate the position of a handle and its corresponding bolt in the position of "open"; the pulling of the handle drawing down the bolt. There is no spring to get out of order, and the lock can be used for right or left doors by reversing the bolt.

Thunder and Milk.

Professor Tolomei, an Italian physicist, has inferred, from experiment, that milk curdles during a thunderstorm through the ozone which is formed by the lightning oxidising it, and generating lactic acid. Mr. A. L. Treadwell, of the Wesleyan University, Connecticut, however, has recently found that while the ozone does curdle ordinary milk in this way, it will not do so if the milk is sterilised and kept from contact with unfiltered air. He, therefore, thinks that bacteria, fostered by the heat, have much to do with the curdling, and this conclusion is borne out by the experience of dairymen, who find that, if milk is kept cold, it does not rapidly sour in a thunder-storm.

A Handy Wall Brush.



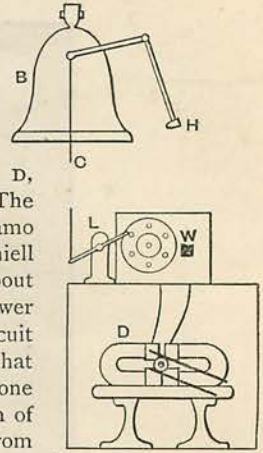
The little device by Mr. C. R. A. Wright, F.R.S., the well-known chemist, will be useful in many a household. It is an oscillating brush or duster for enabling a servant to clean cornices, the walls of staircases, ceilings and so forth, without taking the trouble to mount a ladder or work in an awkward position. The brush is attached to the upper end of a long handle which is fixed at its lower end to a spring attachment, similar to that by which the saddle of a cycle is connected to the frame. The attachment rests on the floor or any other convenient support. The handle consists of two or more rods of wood or metal, which are arranged to glide over each other at the will of the operator so as to shorten or lengthen the rod. When the handle is displaced from

the vertical by the operator, it oscillates to and fro and brushes away the dust. The operator keeps it in motion with one hand and adjusts the length with the other. A pad may be substituted for the brush in order to clean mirrors and windows.

An Electric Fog-Bell.

A fog-bell actuated by electricity has been installed at the end of the pier or mole leading into the harbour

of Ravenna in Italy. It is the invention of Professor Ravaglia, and consists of the bell, B, with its hammer H, at the top of the tower, and a pulling arrangement, L, worked by a dynamo, D, placed inside the tower. The current for driving the dynamo is derived from a large Daniell battery in the lighthouse about a kilometre from the bell tower and a galvanometer in circuit shows the attendant there that it is flowing, while a telephone enables him to hear the hum of the dynamo. The current from the battery enters the armature



of the dynamo or motor, causing it to revolve, and turn a studded wheel or disc, W. The studs strike against the lever L, working it up and down, so as to pull on the chain C, and make the hammer H, strike the bell rapidly, producing a loud and almost continuous note.

Household Novelties.

A new tubular kettle, just patented, is called by its inventor "The Inkerman." He claims for it that it is rapidly heated, and consequently, brings its contents very quickly to boiling point. It looks, at first sight, very like an ordinary oval tin kettle with a flat bottom. But closer examination shows that from the bottom to the back of the kettle, just behind the handle, pass three tubes. Through these the heat and flames of the fire are drawn, and as the water surrounds them it will easily be seen how much more quickly it is boiled than in the ordinary kettle.—An adaptable rug-strap is one of the latest of household novelties. It is made in one piece, so that no part can be lost (or put to other uses and so detached from its complement). The handle is in the middle of the strap and is fitted with a ring-buckle at each end, while the strap itself with the pins of the buckle will revolve on these rings, so as to be usable either at right-angles to the handle (like an ordinary rug-strap), or in continuation of the handle to serve as a box-strap or for a large bundle, or with one strap each way to go round a package and prevent smaller articles falling out. One end of the strap is fitted with a buckle (which does not prevent its passing through the larger ring-buckle of the handle) for convenience of use in one piece.

A Pneumatic Pump for Cycles.

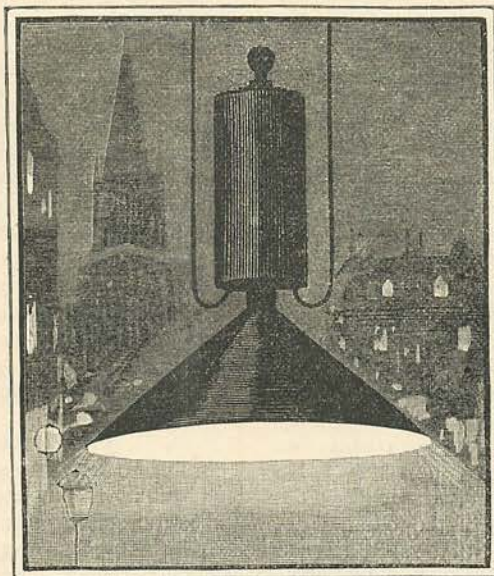


The small pneumatic pump which we illustrate is principally intended for inflating the tyres of cycles, but it can be applied to other purposes. The end of the piston is provided with two finger grips, like those

of a pair of scissors, which give the operator a firm purchase and enable him to pump the air without pressing upon the valve of the tyre. Large sizes of the pump, two feet long, can be obtained for the use of shops and cycle warehouses.

An Incandescent Street Lamp.

The arc lamp, though a splendid light for streets in a clear atmosphere such as that of Paris, is not so valuable in fogs and mists, owing to the absorption of its light by the water vapour in the atmosphere. The incandescent electric lamp is not so sensitive to fogs, and hence the 2,000-volt street lamp which Messrs. Swinburne & Co., the well-known electrical engineers, have introduced, may be very useful in this country. It is shown in the figure, where is shown a small transformer placed over the lamp and its enamelled iron shade. The current of 2,000 volts from the main or distributing leads passes into the transformer by the wires shown, and the transformed current flows from the transformer to the filament of the lamp, heating it white-hot and yielding a light of 32-candle power. While upon this subject we may mention that rolls of iron wire gauze, steeped in chromates, are now used in place of carbon sticks in arc lamps, and give a brilliant white light.



AN INCANDESCENT STREET LAMP.

A Substitute for Nails.

Steel fasteners for woodwork to take the place of nails or screws have recently been introduced. As

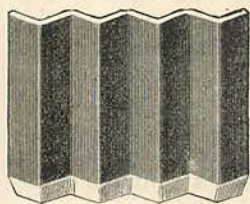


FIG. 1.

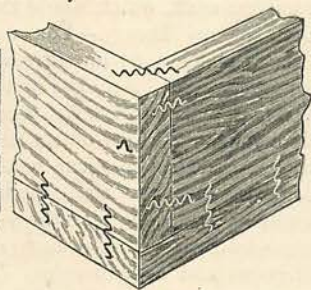


FIG. 2.

shown in Fig. 1 they are small plates of corrugated steel sharpened at the bottom, and they are driven like nails into the wood across the joint to be fastened. Fig. 2 represents the corner of a wooden box made in this way. The fasteners cut into the wood along or across the grain and they do not tend to make it split.

Light and Growth.

Professor L'Arbalétrier, of the École d'Agriculture, Pas-de-Calais, has proved by experiment that the nitrates brought into the leaves of plants by the ascending movement of the sap are soon transformed by the action of light; but that if the plant is kept in darkness, the nitrates accumulate in the leaves and roots, their transformation is arrested, and the development of the plant is seriously checked. These experiments help to explain the fostering of flowers and fruits by the action of the electric light which was the subject of many interesting experiments conducted by the late Sir William Siemens. Market gardeners are beginning to realise a suggestion thrown out some years ago in THE GATHERER before the experiments of Sir William Siemens, and to utilise electricity as well as heat and manure in their cultivation of fruit or vegetables. Mr. W. Rawson, of Arlington, Massachusetts, recently forced a bed of lettuces in a greenhouse 200 feet long by 24 feet wide by keeping an electric arc going from dusk till midnight for a month at a cost of £3.

The lettuces were ready for the market a week earlier than usual—in other words, there was a gain of one week in five. We may also add that M. Spechneff, a Russian horticulturist, has grown some fine vegetables by electrifying the ground itself. This is by no means a new idea, having been done as far back as the end of the last century, but the time was never so ripe for it as now. M. Spechneff buried plates of copper and iron in the ground some distance apart so as to make the "earth battery," as it is called, of Alexander Bain, a famous Scotch electrician. These plates were connected above ground by an iron wire and the current generated by the moisture of the earth circulated through the ground between them. In this plot he sowed various seeds and raised exceptionally good crops. A radish, for instance, grew over 17 inches long and $5\frac{1}{2}$ inches thick; a carrot was $10\frac{1}{2}$ inches in diameter and weighed $6\frac{1}{2}$ lb. M. Spechneff thinks that electricity as applied in this way increases the yield of root-crops fourfold, and of ordinary vegetables twofold. There seems therefore to be a substantial gain in "muckin' the land wi' lichtnin'," as the Scotch once termed it.

The Brain of Laura Bridgman.

The case of Laura Bridgman, who lost her sight, hearing, and nearly all sense of taste and smell at the

age of two years, has moved many a reader in the pages of Dickens's "American Notes." In 1878 Professor Stanley Hall by careful tests found that if she had a slight sense of taste, she had none of smell; and, although she could feel mechanical vibrations, she could not hear the loudest noise. Rotation made her giddy. Her sense of touch was thrice acute. In mind she was eccentric, lacking the data of thought, but not the power to reason, and was very emotional. In 1889 she died at the age of 60, much regretted. Her brain has recently been reported on by Dr. H. H. Donaldson of Clark University, who found it to weigh 1,200 grammes, which is a little below the average of the Anglo-American brain, that is to say, 1,275 grammes; but as she was a small woman, it is not abnormally small. There was a defect in the centres known to be connected with the power of speech and in the occipital lobes, especially at the right or visual centre. The temporal lobes were faulty at the tips. Other defects were observable, but there was nothing of a criminal or insane character about them.

An Electrical Log.

An electrical log for measuring the distance traversed by ships has been brought out by a well-known firm of instrument-makers. It is very simple, the vane in the water interrupting an electric circuit every six revolutions, and thus working a counter on the ship, which tells the distance traversed. No battery is required—or rather, the sea itself is the battery, one electrode or plate of the oceanic cell being represented by the iron hull of the ship, and the other by the brass case of the submerged log. The circuit is completed through a wire running inside the log-line.

The Digestibility of Cheese.

Herr Klenze, a German physiologist, has found by experiment that Cheshire and Roquefort are the kinds of cheese most easily digested. Next to these come the following in their order of merit: Emmenthal, Gorgonzola, Neuchâtel, Ramadour, Rotenburg, Mainz, Fromage de Brie, and, last of all, Swiss cheese.

Spurious Coffee.

Coffee beans are manufactured on a large scale in America. They are made of rye flour, glucose, and water, and are intended to pass as genuine beans after being mixed with the real berry to acquire the aroma. It is stated in the *Kew Bulletin* that 20 per cent. of the coffee sold in the United States is artificial. Spurious coffee has also been manufactured in Germany, but was checked by Imperial decree, forbidding the construction of the machines for making it, these having been advertised so largely as to attract the notice of the Government. We may add that artificial almonds for mixing with the genuine ones are manufactured in Holland by a somewhat similar process.

Electricity and the Compass.

Sir William Thomson, in his recent lecture at the Royal Institution, condemned the practice of supply-

ing electricity to lamps on board ships by means of a single wire, using the iron hull to complete the circuit. He showed that it may cause a deviation of 3 deg. to 7 deg. in the ship's compass, and urged that it should never be employed unless alternating currents are supplied to the lamps. These currents change so rapidly in direction that they do not affect the needle; but the direct currents flowing always in one way are preferable on the score of economy, and their use has no influence on the compass, provided that double wires, going to and returning from the lamps together, are employed.

Vegetarian Cookery.

Our old contributor, Mr. A. G. Payne, whose work must be within the recollection of most of our lady readers, is responsible for "Cassell's Vegetarian Cookery." He explains that the book, although written on strictly vegetarian principles, is suitable alike for vegetarians and for those who are seeking to gradually take more of their food in vegetarian and farinaceous form, and less in the shape of meat. On every ground, economical as well as scientific, we would join in the advocacy of reform in this direction, and in such a reform a guide-book like the one before us is calculated to render good service.

For Students and Others.

Dr. S. R. Gardiner's "Student's History of England" is now complete. How full it is may be gathered from the fact that the one-volume edition contains very nearly 1,100 pages and no less than 378 illustrations. Those who have provided themselves with the first two volumes, which we noticed at the time of their publication, will be glad to hear that the third volume is now ready, and may be had so as to complete the work in the form in which it was originally issued. But probably those who have yet to make acquaintance with the book would prefer the more compact and convenient form of the handsome single volume which is published simultaneously with the third part. All that we have said of the two sectional volumes applies with added force to the complete work, which would form a valuable acquisition to any library.—For use with children and young students, as an introduction to the study of geography, Mr. Arnold-Forster has written "This World of Ours" (Cassell). The principle of his work is the application of the object-lesson to the explanation of the natural phenomena which account for physical conformations, and the coupling of simple historical teaching to account for the various partitions of the earth into individual countries, with their many subdivisions and dependencies. The book will serve as another nail in the coffin of the old dryas dust system of education.—The second volume of "Cassell's Storehouse of General Information" carries this excellent and handy little encyclopædia from "Beast" to "Castro." It is thorough though it is not diffuse, and comprehensive as well as concise, and has the great recommendation of being well and freely illustrated.