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 Sea-Weed Nursery.

The marine station at Kiel is a veritable sea-weed nursery, for by means of forcing aquaria, warmed by hot-water pipes, even tropical forms are successfully propagated. Rooms for studying the various productions of the establishment, and a herbarium of dried specimens, are also attached to the station. Our figure shows a wire basket, devised by Prof. Reinke for growing sea-weeds under the water. The wire pouch hangs from a strong frame, which is equally capable of standing on three legs or of being suspended below the surface from a wooden buoy. In this submerged aquarium the sea-weeds flourish amid their native element, and can be removed from it at will. It is proposed to hold a public exhibition of the products of the establishment.

Advances in Electric Lighting.

An electric lamp made to resemble a wax candle has been brought out by a London agency. The candle part is formed of clouded glass, and the wick of a flamboyant spiral filament of carbon enclosed in a glass bulb. Such a lamp is adapted for chandeliers or candelabra of the Louis Seize pattern. While upon this subject, we may mention a new electric light-holder, which permits of the light being tilted, so as to shine either in a vertical or horizontal direction. It is the invention of Mr. W. S. Boult, of Liverpool, and is shown in Fig. 1. A brass boss with three radial arms is screwed to an ordinary lamp-holder. Three cords run through eye-holes in the ends of the arms, and also through a block attached above to the flexible conductor, as shown. By means of this tackle, the lamp and its reflector can be inclined as illustrated. Another lamp-holder recently introduced is shown in Fig. 2. It consists of an ornamental reflector, from which is suspended a bouquet-holder, which can be filled with orchids or other flowers. Sometimes the rim of the reflector is fitted with a fringe. We may remark that white silk makes a very good reflector of electric light.

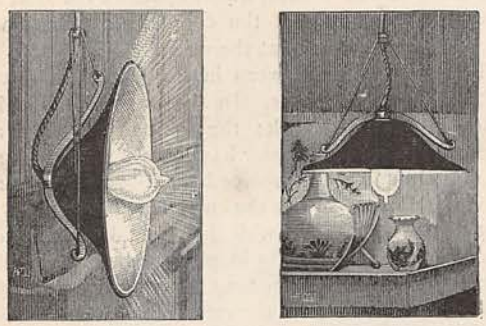


FIG. 1.

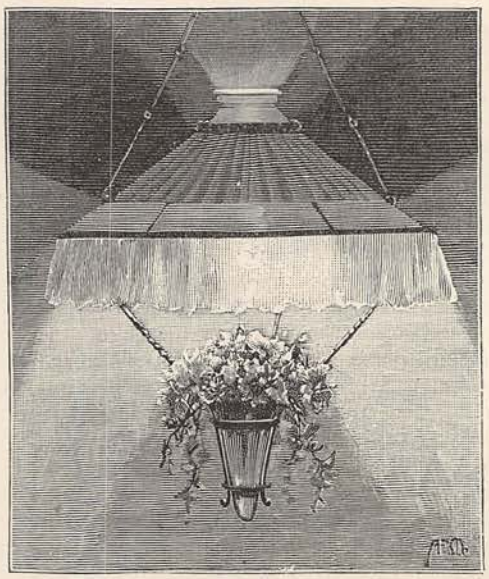
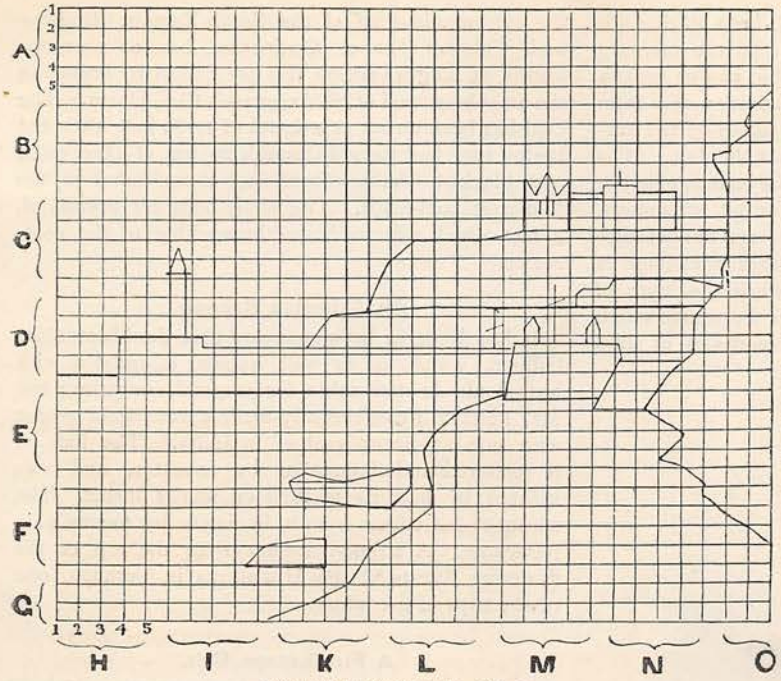


FIG. 2.

Japanese Lacquer.

This material is chiefly an exudation from the bark of the young tree known to botanists as *Rhus vernicifera*. The sap is greyish at first, but darkens to black. Sometimes perilla oil is added to it as a drier. The sap contains urushic acid, associated with an albuminoid substance, a gum, and a poisonous volatile acid. The lacquer hardens by the oxidation of the urushic acid. To form the best black lacquer, iron or a salt of iron is added to the juice. Coni-



PICTURES BY TELEGRAPH.—FIG. 1.

ferous wood is usually that chosen to be lacquered, and before the coating is applied, all joints and holes are filled up with a putty made of inferior lacquer and rice-flour.

Pictures by Telegraph.

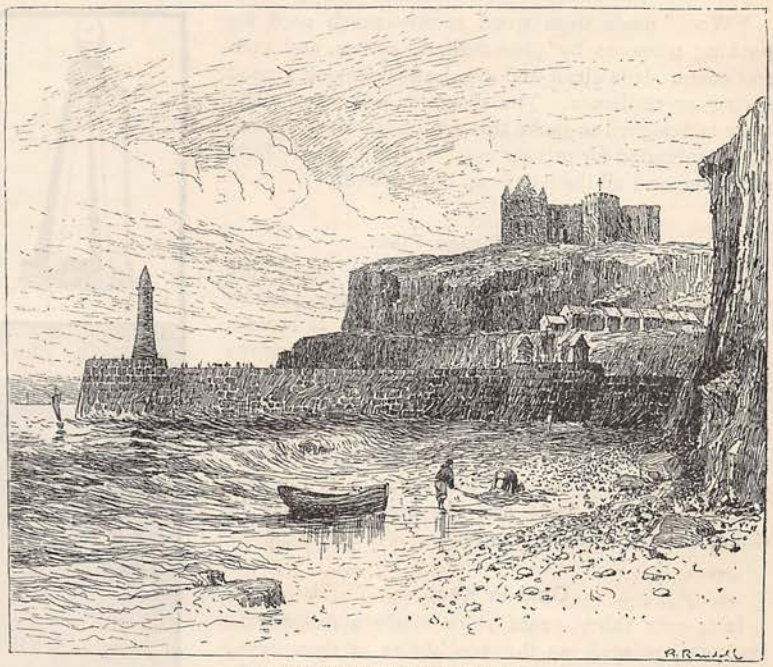
A method of transmitting drawings by telegraph has been devised by Mr. H. Rickinson, and is illustrated herewith. Fig. 1 represents an original sketch which it is desired to reproduce at the other end of the telegraph line. The drawing is crossed with equidistant lines forming squares, by means of which any point in the sketch can be localised. The squares are lettered and numbered, as shown, and the proper letters and numbers are telegraphed for every important point in the delineation. When the points are all plotted on a corresponding sheet, the outlines are filled in, and the picture is shaded according to the directions verbally telegraphed. Fig. 2 exhibits the final stage in the process. The scene is a view of Whitby Harbour. In time of war, or as a means of detecting criminals, this device might prove of service.

Cutting Stout Thread.

Those persons who have to work much with stout thread will know best how to appreciate an ingenious little device which Mr. F. J. Jones has just patented. This is one of those ideas which are so simple, and so obviously useful, that we can none of us imagine "why in the world no one ever thought of that before!" In the reel on which the thread is wound, a very diminutive knife is inserted across such a nick as is generally cut to hold the loose end of the thread. By means of this, even stout thread, which cannot possibly be broken off in the ordinary way, may be readily cut; and as the knife does not project beyond the surface of the reel, there is no new element of danger introduced into the work-basket.

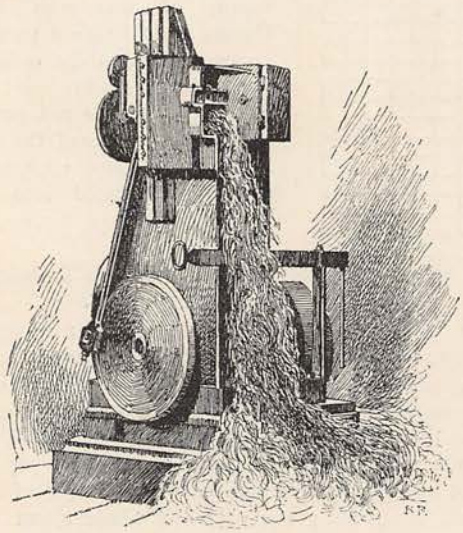
How to keep up Bedroom Fires.

The following method of keeping up bedroom fires through the day and night with little trouble and at small cost has been found very successful. The fire should be made up every night, at nine or ten o'clock, by placing four or five pounds of coal evenly on the top of it; over this about seven pounds of very small coal, or coal-dust, should be spread; and over the whole about four pounds of fine coal-ash should be strewed, and patted



PICTURES BY TELEGRAPH.—FIG. 2.

flat with the shovel. Such a fire will burn all through the night without any attention, and in the morning the resulting cake of ash and coal-dust can be broken up, producing a bright blaze. The addition of a little fresh coal, with a light strewing of ashes on the surface, will keep the fire in throughout the day. It is calculated that by this method fourteen pounds of house coal and seven pounds of coal-dust, or pit screenings, will keep a large bedroom at an average temperature of 58° for twenty-four hours. Another advantage is that almost smokeless fires result, since the layer of super-imposed ashes appears to filter the smoke which passes through it, retaining all the particles of solid carbon.



A Wood-Wool Machine.

"Wool" made from wood is now much used for packing purposes by glass-makers, cutlers, and confectioners. It is clean and dry, besides having a good spring or resilience. The machine which we illustrate is designed to make this wool from waste wood, and is intended for private use. It requires very little attention, and all the parts can be renewed.

A Bee and Forage Plant.

The *Phacelia tanacetifolia* is a honey plant very common in California, where it is much frequented by bees, besides serving as fodder for cattle. It bears a blue flower about eight weeks after sowing, and grows to a height of about two feet. Trials of the plant by beekeepers have been made in Germany, and it is found that cattle readily eat it, roots and all, whether green or dried. If used as green fodder, this should be done before it flowers, and the portions of the crop reserved for the bees and for seed-grain may be utilised as dry fodder afterwards.

Coal in Kent.

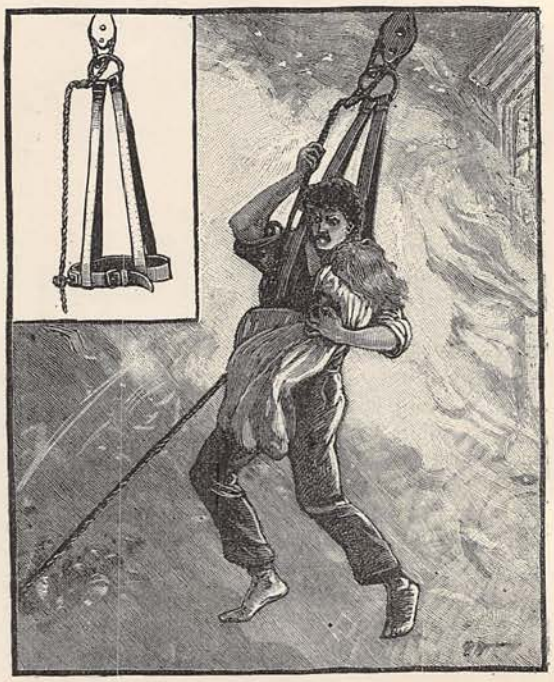
It is over thirty years since Godwin Austen, the geologist, pointed out the probability of there being coal-beds in the South of England. Mr. Francis Brady, the engineer-in-chief of the South-Eastern Railway and Channel Tunnel Companies, has, as everyone knows, at length verified this prediction by boring in the neighbourhood of Shakespeare's Cliff, Dover. The coal has been struck at a depth of 1,180 feet, after the boring tool had passed through 20 feet of clay, grits, and blackish shales resembling those found in the Somerset coal-fields. The shale-beds are horizontal, a fact which will facilitate the working of the coal-seams.

An Asbestos Balloon.

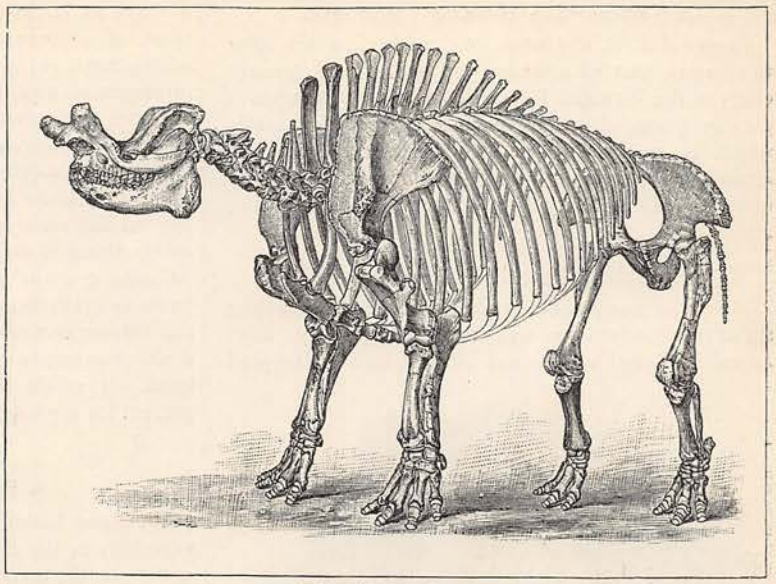
It has hitherto been supposed that the Montgolfier balloon, which, as is well known, is inflated with heated air, is unsuitable for tropical countries ; but Mr. Percival Frost recently made a successful ascent with one at Secunderabad in India. The balloon is rendered uninflammable by asbestos, and was inflated by burning methylated spirits inside. The aëronaut descended from it in safety by means of a parachute. A balloon voyage over the top of the flowering forests of the Himalayas is, perhaps, one of the trips of the future.

A Fire-Escape Belt.

The figures illustrate a simple fire-escape, which is utilised as shown. It consists of a stout leather belt, which goes round the body under the arms, and is suspended from a ring by three straps. This support is allowed to descend to the ground by means of a rope, at the will of the occupant. The rope is fastened to the burning house through a pulley-block and chain, which is secured to an eye-bolt permanently fixed under the sill of a window, inside. The friction of the rope, running through the eyelet of the



belt, acts as a brake, and by inclining the rope this can be so controlled as to stop the descent at any point. It can be used by women and children, the belt making them secure. If through excitement the grip on the rope be lost, it can easily be recovered, as it runs alongside. Moreover, the occupant can descend at any angle to the burning house, if someone takes hold of the lower end, and keeps it on the slant. Immediately one person is lowered, the escape can be hoisted to fetch another.



THE TITANOTHERIUM.

The Titanotherium.

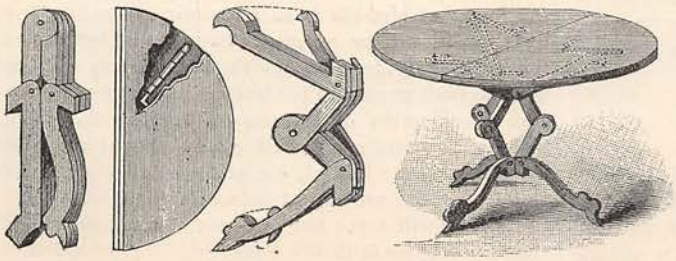
Our illustration represents the skeleton of a *Titanotherium robustum*, an extinct monster allied to the rhinoceros, whose bones are found in the Brontotherium beds of the Miocene formation in Dakota. A finely executed model of the skull of this animal has been presented to the British Museum by Professor O. C. Marsh, of New Haven, United States. The titanotherium seems to have been about the size of the existing elephant, and its skull differs from that of the rhinoceros in having two large processes of solid bone projecting over the nose above each nostril. In the rhinoceros there is one, and sometimes two horns above the snout, but placed one behind the other, and having no bony connection with the skull itself. The processes of the titanotherium were probably sheathed in horn.

A Non-Magnetic Alloy.

Dr. J. Hopkinson, F.R.S., has announced the formation of a nickel-steel which, like manganese-steel, is practically non-magnetic, although all the ingredients are strongly magnetic. The new steel contains 24·5 per cent. of nickel, and 0·85 per cent. of manganese, and its magnetic permeability or power of being magnetised is represented by the low figure 1·4, whereas pure steel runs up to many thousands.

Folding Furniture.

Furniture which folds up for transport, and passage through doors, is one of the latest American novelties.



Our engravings show a table which is made on this plan: the table being in two parts, the top and legs. The top is made in two leaves that are hinged together in such a way as to fold in the manner shown. The furniture is a contrivance of Mr. Zeffro Massa, and is partly of wood, partly of iron.

China Clay.

The porcelain clays of China differ from those of Europe in containing a large percentage of white mica, or, as it is called, "muscovite." According to a recent analysis of M. Georges Vogt, the "yeou-ko" clay, a fusible sort, used for glaze, consists of 52·9 parts of quartz, 31·3 parts of muscovite, 13·4 of soda felspar, 2 of carbonate of lime, and 1 of hydrated silica. Petun-tse clay contains no less than 40·6 per cent. of muscovite, which, indeed, is a common ingredient of the soil in the Flowery Land. Its presence in porcelain clays evidently helps to account for their translucency.

Wattle-Bark for Tanning.

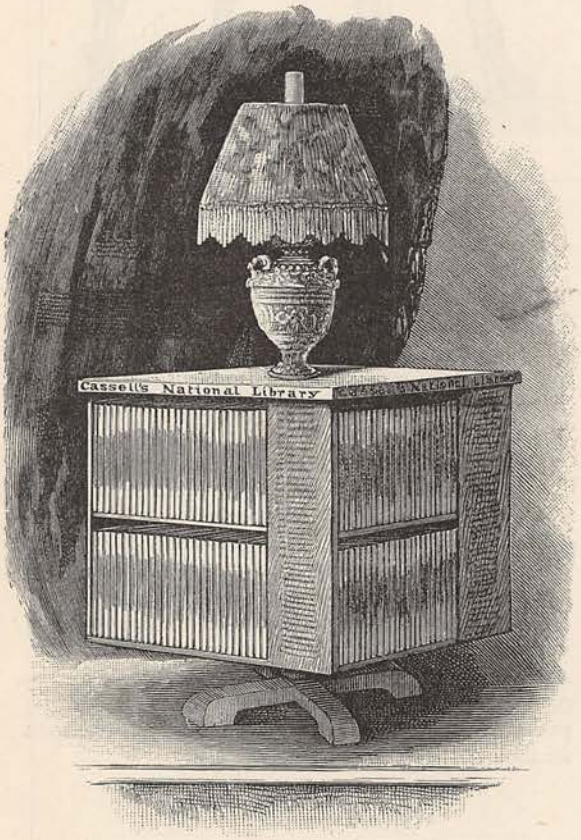
A recent United States consular report of Mr. Merry points out that the bark of the Australian wattle-tree is an excellent substitute for oak-bark tanning. There are two varieties of the tree, which belongs to the family of acacias, namely, the black and the broad-leaved wattle, both of which flourish on a poor soil in a dry climate. Hides can be tanned in 47 days by the black wattle-bark, which contains from 30 to 32 per cent. of tannic acid. The broad-leaved wattle-bark contains from 26 to 28 per cent. of this tanning principle. The latter variety has a little less of the tannin, but it is a finer tree than the black wattle, and can withstand a higher degree of frost.

A "Wimbledon Meeting" at Home.

Corporal T. E. C. Green, of Exeter, has hit upon the happy idea of adapting the scores and terminology of the National Rifle Association Meeting to a parlour game, played by means of a pack of cards, which is published by Mr. James Townsend, of Exeter. The game is very readily learned, and promises to afford plenty of amusement both for young and old.

A Handy Revolving Book-Case.

No doubt many of our readers possess the complete set of two hundred and eight volumes that have been issued in Cassell's National Library, and will be glad



to hear of a case, specially made to hold them all in such a way that they shall always be readily accessible and available for use. Our illustration shows the case, which is made to revolve, and is provided on each of its four faces with an alphabetical list of the volumes to be found on the adjoining shelves. As our illustration suggests, the top of the case may well be used for a lamp-stand, or for similar purposes.

For Wives and Mothers.

A veritable encyclopædia of household lore is Cassell's "Book of the Household," of which the second volume is now before us, and may well be commended to wives and mothers. Such divers subjects as home dressmaking, cookery, the management of income and domestic book-keeping, the arrangement of the garden, spring cleaning, and home surgery and medicine, to say nothing of chapters on etiquette and entertainments, will be found here dealt with in a practical and direct manner. There are hints in the volume that could only be of service to those with large houses and corresponding incomes; but, on the other hand, those who are not so fortunately situated may glean from almost any page of the volume many a wrinkle as to how their home may be made brighter and more comfortable. There is in the volume one very useful chapter on weddings, and wedding-presents are naturally dealt with under this head. It would be difficult to select a more useful present for a young bride than this work itself.

A Book for Gardeners.

We have heard much of recent years, and more especially in the South of England, about the advisability, or the reverse, of fruit-farming. Possibly that accounts for the increased interest in the subject. Not farmers alone, but all those who possess gardens, and especially those who have an orchard, large or small, should gladly welcome a little booklet recently issued by Messrs. Eyre and Spottiswoode, under the title of "Our Hardy Fruits." It is written by Mr. Brian Wynne, F.R.H.S., and gives practical hints, not only on the selection and cultivation of the fruit-trees and shrubs that are suited to our climate, but deals further with the insect enemies to which our fruit-trees are particularly subject.

Eggs and Egg-Collecting.

It is satisfactory to know that in the preface to "Birds'-Nests, Eggs and Egg-Collecting" (Cassell) Mr. R. Kearton expressly declares that his book "is in no way intended to encourage the wholesale and useless collecting of birds' eggs, which simply means the destruction of one of the greatest charms of county life, but is intended to convey a better knowledge and thus a higher appreciation of the beauty and poetry of bird-life." Mr. Kearton's acquaintance with his subject was gathered, we believe, principally in the "county of broad acres," where he had many opportunities of studying, which he has turned to good account. We are sure that no one could deprecate more strongly than our author the wanton and cruel emptying of the nests of our woodland and hedge-row songsters that used to be so common. Doubtless, if the study of bird-life is to be continued on practical lines, it will still be necessary to make collections of the eggs, and Mr. Kearton shows how this may be done without cruelty to the birds. In the preservation and classification of specimens Mr. Kearton's book and its beautifully coloured plates should serve as a *vade mecum;* indeed, the plates are so good and so full, that we are almost led to hope that in many cases they will serve the purpose, with naturalists, of the eggs they so faithfully represent.