when they occur they are usually divided by floral sprays. Large shaded moons as big as a walnut form the ground for many floral effects.

Zephyrs are such a well-wearing, well-washing material, it is not wonderful that manufacturers have produced them, not only in their old guise, but also in many new designs. On their surface appear snow-flake spots, diamonds in white weaving, feathery stripes, and solid spots of silk, for silk and cotton are this season blended for the first time, and the result is eminently satisfactory. Cotton crape has such a solid aspect, and keeps in order so long, that it is not surprising it is being improved upon. Rings and spots, as if darned, and other quaint devices, are now introduced, and young girls can have plenty for their money, as far as effect is concerned. French girls affect washing dresses greatly, and bestow much pains on the making of them. White muslinettes have not been allowed to remain in virgin purity, but a line of colour borders either side of the stripes, and tiny motifs in decided shades appear in many examples.

Crêpe de Chine has been so richly brocaded that it is frequently made to serve for the principal part of a dress, and blends well with velvet, for velvet is much to the fore, both plain and brocaded.

Long, ruffled sleeves in thin materials are introduced with many low bodices, but as the season advances, they will not, as was predicted, be replaced by sleeves to match the dress. This is too hot and cumbersome a mode for summer, though the low bodices will be brought up higher on the shoulders and be somewhat severe in style.

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 Letter-Damper.

FIG. 1.

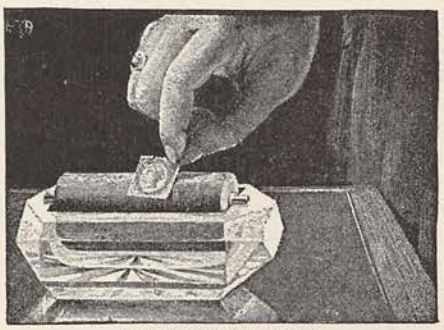
The woodcuts show a little apparatus for moistening the gummed flap of envelopes and the back of postage stamps. The first is a dog's head, from which a moist brush protrudes of sufficient stiffness to be used as an ordinary brush, and it is kept always wet by a wick which dips into the reservoir of water seen below. The reservoir is in the handle of the brush by which the gum is moistened. The second figure represents a moist roller or damper of a well-known type, on which the postage stamp is pressed in the manner shown. The glass vessel contains the water which moistens it.

Panoramic Photographs.

A means of taking a panoramic photograph of a long stretch of country—in fact, all round the horizon—has been devised by M. Damoiseau, a French inventor. It consists of a camera, which is pivoted on a horizontal plate supported on three legs, after the manner of a theodolite. The camera slowly moves round on its pivot, while at the same time the sensitised paper moves so as to present a fresh surface to the image; and the adjustment is so perfect that the photograph is quite distinct in every part.

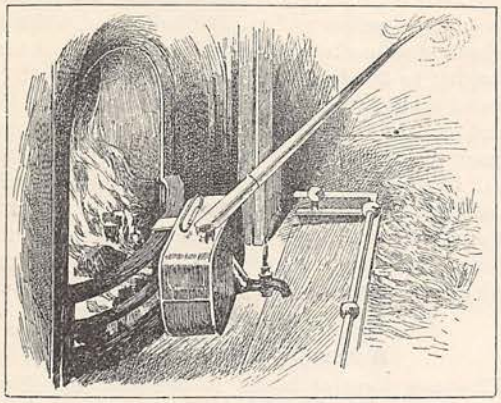
The Cycle and the Telegraph.

The water-cycle of M. Romanes has been tried in laying telegraph wire in the sea at Marseilles. This velocipede is fitted with hollow bi-convex wheels, which run well on a road and also serve as floats in the water. They are mounted with copper vanes, which act as paddles in propelling the vehicle afloat. A reel of insulated wire and a portable set of telegraph apparatus were taken out on one from the sea-shore at Marseilles, the wire being paid out into the water as the cycle advanced; and telegrams were exchanged between the cycle and the shore. The best receiver of the message was a magneto Bell telephone, and a battery was formed by lowering plates of zinc and carbon into the sea-water. The "line" was connected to "earth" through the metal frame of the cycle. The object of the experiment was to show that this amphibious velocipede, which travels on land at a



LETTER-DAMPER.—FIG. 2.

speed of twelve miles an hour, may be serviceable to scouting parties in crossing rivers and submerging telegraph lines.



A New Bronchitis Kettle.

Our illustration shows a new bronchitis kettle which has recently been patented. Its chief feature, as will be seen from the engraving, is that, by means of a hook at the back of the kettle, it is suspended in front of an ordinary fire-place, and thus the danger of upsetting is avoided and the steam most effectually directed into the room, while the fear of smoke entering with the steam is removed. Another advantage of this kettle is that it may be used with gas fires just as well as with coal; and by means of the tap shown in front of the kettle, the hot water may be readily removed if desired.

The Lucigraph.

An American inventor has introduced the magic lantern as a means of signalling at sea. The "Lucigraph," as he calls it, is an optical lantern, having slides in the shape of stencil plates, each with a letter or figure cut in it. The screen is a flag stretched in a conspicuous part of the ship, and the beam projects the letter of the slide on the flag. By the help of glasses, the distant ship reads the letters projected on the screen. They have the merit of being legible by anyone who can read, and do not require the use of a code.

The Poison of Toads.

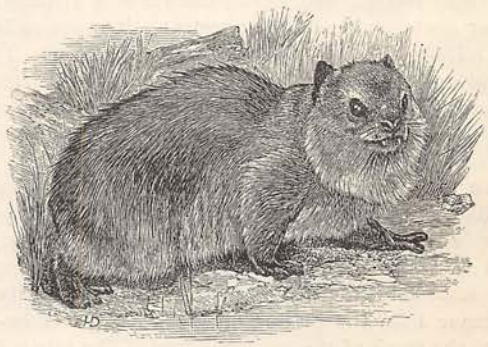
Herr Schultz, a German naturalist, has recently shown that salamanders and toads have not only mucus-glands all over their skins, but certain poison-glands on parts of the back and limbs, and behind the ears. These glands perform a protective function, and emit a corrosive juice, which can be detected with copper-hæmatoxylin. In the salamander the poison is spurted out on stimulation; but in the toad it slowly exudes. Hence it is, perhaps, that the inaggressive toad has acquired his popular reputation as a venomous animal.

A New String Reel.

A new string reel, which has recently been patented, seems to deserve the attention of proprietors of large shops and warehouses. It is intended for carrying strong twine, and is fitted above the counter at a convenient height. In the bottom bar of the frame, below the spindle on which the reel revolves, is an opening which serves as a guide for the string which is wound on the reel, and, of course, regulates and controls its revolutions as it is drawn down by the salesman. The great feature of this invention, however, is a re-winder, which is brought into action by the pulling of a cord handle outside the frame, and which causes the reel to revolve in the opposite direction, and thus re-wind the string not required at the time. The advantages of a device of this kind are so obvious as hardly to need pointing out.

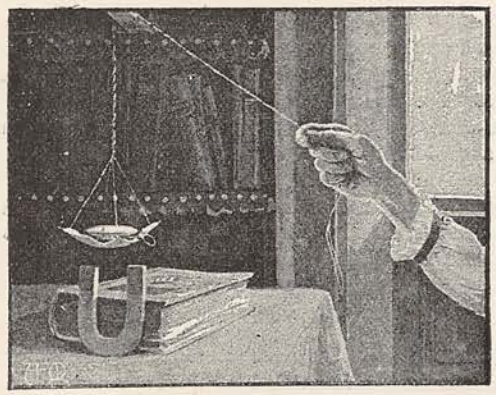
A Rock-Climbing Coney.

In the Small Mammals' House in the Zoological Gardens is an interesting little quadruped—the Cape Hyrax (*Hyrax capensis*), of the same genus as the "coney" of Scripture. This genus, which contains very few species, constitutes an order; for, though somewhat resembling rabbits in appearance, these animals approach the rhinoceros in the structure of the skull



and in the molar teeth, the elephant in the number of ribs, and the tapir in the number of the toes, which are covered with rounded hoof-like nails. The hyrax not only "makes its house in the rocks," but is also able to run up and down smooth surfaces that are almost perpendicular, and to cling tenaciously to horizontal surfaces. Dr. Schweinfurth, who was one of the first to record this fact, which had escaped general notice, saw that the foot of the animal had several deeply indented cushions, and thought that "by opening and closing the centre cleft it could throw off part of its weight and gain a firm footing on a smooth stone surface." The true explanation is much more simple. By elevating the sole, while the soft elastic sides and heel are in contact with the ground, the animal converts each foot into a natural sucker. But moisture is a necessary condition to the successful working of a sucker; consequently the sweat-glands in the foot of the hyrax are very numerous—about 40,000 to the square inch, or fifteen times as many as in the same space on the human foot. To enable the animal to run with impunity over hard angular surfaces, the sole is protected by a deep layer of epithelium, and the importance of the sweat-glands is again apparent, for

this layer would very soon become horny from continual pressure, if it were not constantly kept moist by abundant secretion.

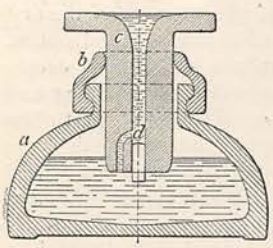


Demagnetising a Watch.

The engraving shows a homely arrangement for driving away the magnetism contracted by the steel parts of a watch—for instance the balance-wheel—on being brought under the influence of a dynamo or other electro-magnetic arrangement. It is due to Mr. P. D. Richards, of West Medford, Massachusetts. The apparatus required consists of a horse-shoe magnet placed on a table with its poles uppermost. A suitable support, say a wooden rule fixed by some books, is placed above it as shown, at a distance of two or three feet. The watch is hung over the magnet in a cardboard tray by a stout thread which has been previously twisted. The string is then allowed to untwist, and thus twirl the watch over the poles, while at the same time the tray is pulled up, increasing its distance from the poles by degrees until it is beyond the reach of the magnetic field. The original magnetism of the watch is thus removed.

Another New Ink-Bottle.

An ink-stand which only exposes a small area of the ink to the atmosphere, while holding a large quantity, is shown in section in our engraving. It consists of a receiver, *a*, which is closed by an air-tight rubber cap, *b*, through which a pipe or dipper, *c*, descends to the well. This shaft is closed by a plug, but the ink enters it by a curving side channel at *d*. To obtain a supply of ink for writing, the pipe *c* is pressed down through the cap till the ink rises to the top of the channel *d*, and there is no danger of the ink spurting out.

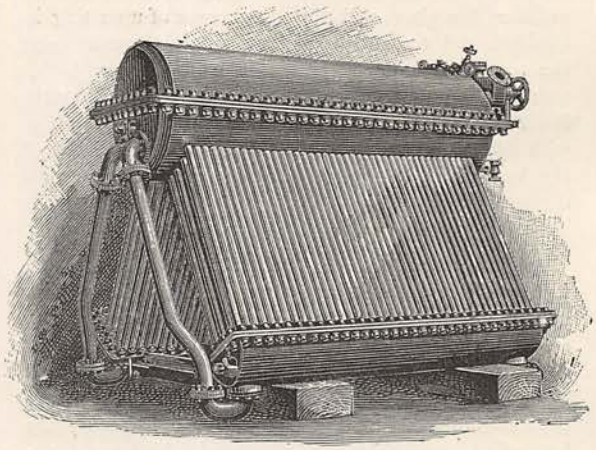


Lichen Bread.

During last August an extensive shower of "manna" fell near Merdin and Diarbekir, in Asiatic Turkey, and the substance was collected by the people, sold in the markets, eaten, and baked into bread. Samples of it were sent to Paris, and have now been reported on by French naturalists. The so-called manna consists of little yellow pellets, like hailstones, white in the heart, and has been identified as an edible lichen, belonging to the family of *Lecanora esculenta*, which is found in Algeria, the mountains of Tartary, and the desert of Kirghiz. Parrot, a traveller, brought home some of the lichen from Persia in 1828. He was told it had fallen somewhere in Persia to a depth of eight inches, that animals ate of it with avidity, and that it was gathered by the people. It is supposed that the lichen in such cases is caught up by the wind and carried to a distance, where it falls to the ground.

A New Tubulous Boiler.

This new form of boiler is designed for ships, and has been introduced into one of the new second-class torpedo boats. It consists of a horizontal upper chamber and two lower ones, connected by straight tubes of weldless steel. The gauges and other fittings are attached to the upper chamber.



The two bottom chambers rest at the sides of the fire-grate. The whole is enclosed in a smoke-jacket and the products of combustion pass up among the tubes to the chimney above. The advantages claimed for it are that it is easily cleaned and repaired, is light, and, while quickly heated, is a most efficient generator of steam.

Artificial Indigo.

Indigo blue was first made synthetically by Professor Bäyer, of Munich, in 1880; but a cheaper process than his was brought out recently by Professor Houmann, of the Polytechnic School, Zurich. The dye is made by heating phenyl-glycocine with caustic soda. The phenyl-glycocine is formed by the action of aniline on mono-chloracetic acid, which is obtained by the action of chlorine on glacial acetic acid; so that the artificial indigo is a product of acetic acid, aniline, chlorine, and caustic soda, all of which are inexpensive materials.

A Steel and Wood Paving.

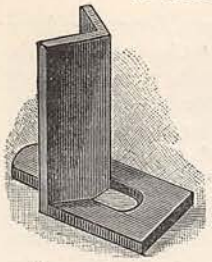


FIG. 1.

A composite pavement of wrought steel and wooden blocks has recently been tried in Queen Street, Sheffield, with the best results. A concrete foundation is prepared and coated with pitch, upon which sockets of wrought steel, as in Fig. 1, are set, each socket consisting of an upright angle-iron with a flat base. A corner of each wooden paving-block is placed in the socket of angle-iron, as shown in Fig. 2, and the insterstices

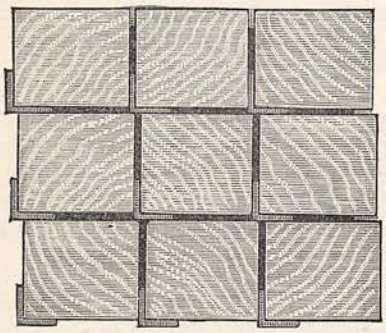


FIG. 2.

are filled up with melted pitch, which allows of the wood and iron expanding or contracting with changes of temperature. The pavement affords a safe and noiseless footing for horses.

An Electric Watch-Lighter.

The "Tempolux," or electric watch-light, is a small incandescent lamp fed from a dry battery, and enclosed in the watch-case, which is provided with a key or press-button, shown at the side of our illustration. This key illuminates the lamp whenever the time is required by night. The current is conveyed to the lamp by the wires shown, and the source of electricity is a Gassner dry battery, which is free from smell, and may be placed in any convenient spot. For persons with defective sight a special case with a magnifying lens is provided.

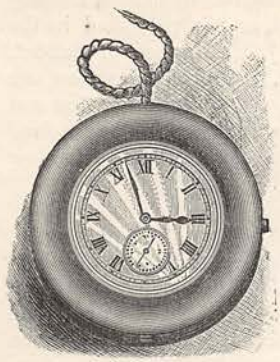


Photo-electricity.

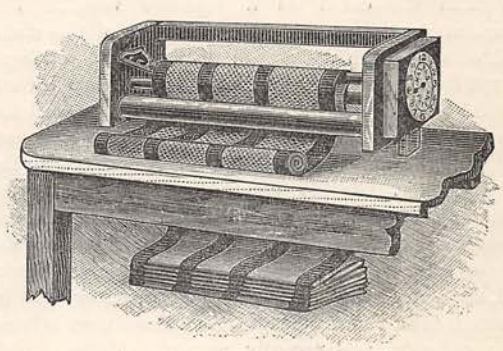
Professor G. M. Minchin, M.A., recently read a paper to the London Physical Society, in which he stated that electric currents can be generated by immersing in a conducting solution two silver plates coated with collodion, or gelatine emulsion of the bromide, chloride, and iodide of silver, provided one of the plates is exposed to light and the other kept in the dark. The electro-motive force of such a photo-electric cell is $\frac{1}{20}$ volt. Eoscine, fluorescine, and other aniline dyes, may be used instead of the above coatings. The blue end of the spectrum is the most active in generating the current, which, it may be added, has a photographic effect on the plate. This effect, moreover, is confined to the part of the plate through which the current passes. In making these experiments, Professor Minchin aimed at producing a "telephote," or "telephotograph"; that is to say, a means of transmitting a photographic image by electricity. Clearly, if the image can generate a current which, after traversing a wire, will evoke a corresponding image on a distant sensitive plate, his idea will be realised. But although he has made a step or two in this direction, he confesses that he is far from the goal of his researches.

Neuralgia and the Electric Light.

A writer in the *Medical Record* states that he has found relief from the pangs of neuralgia by holding the glass globe of a lighted incandescent lamp against the seat of the pain. The gentle heat of such a lamp may, indeed, act as a palliative, and the writer further suggests that poultices might be kept warm in a similar way. Perhaps some of our electrical mechanicians will construct a small warming-pan, heated by the electric current, for such purposes. There is, of course, little risk of burning the skin or setting fire to anything by properly utilising the heat generated in this way.

A Counting Cloth-Roller.

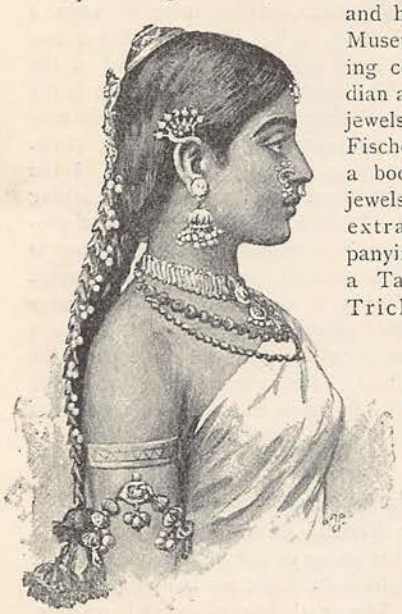
The engraving shows a simple appliance, weighing only a few pounds, for enabling retail drapers and



others to measure fabrics while rolling or blocking them. The cloth passes under and over a set of four rollers as shown, the last of which actuates a counter, the dial of which is seen on the right, and tells the number of yards paid out. Another of the rollers is adapted to tighten the cloth if required. The machine will be useful in stock-taking as well as at other times.

Science and Jewellery.

Science is teaching us that jewels, like everything else pertaining to man, have an ethnographic value, and hence the Berlin Museum is now forming collections of Indian and other foreign jewels. Herr L. H. Fischer has published a book upon Indian jewels, from which we extract the accompanying illustration of a Tamil beauty of Trichinopoly. The lower classes of India have a caste in ornaments as in race. The gems in vogue differ in different localities. Green stones are invariably worn by men in the Madras Presidency, garnets in Jeypore, turquoises in the Himalaya district. Bracelets are made from the Changu (*Turbinella rapa*) in the Dacca district, and amulets or rings of mother-of-pearl in Ceylon. Silver or its alloys are commonly, and gold but rarely used.



A Separable Steamer.

The Welland Canal, which connects Lake Ontario with Lake Erie, Canada, is only navigable for ships of comparatively light draught, and hence the plan of dividing a steamer into halves, each of which navigates the canal as a separate vessel. The *Mackinaw* and *Keweenaw* are two ships of this class, built of steel, with a tonnage of 3,578, and a length of 290 feet. They were recently split in two by unriveting amidships, at Buffalo. They then passed the canal in sections, which were united again at Montreal, and the entire vessels left for New York by the St. Lawrence. While upon this subject, we may mention that a new bow-and-stern dock has been introduced at New York. It can be fitted to the bow or stern of any vessel in an ordinary wet dock, and, the water being pumped out of it, repairs can be effected. The French steamer *La Champagne*, injured by a collision, was recently repaired in New York Harbour by this means.

"Memories of Milan."

With reference to the article under this title which appeared in our January number, we are informed by a correspondent, who tells us he writes on the very best authority, that it is not the case that any relic of Judas Iscariot is preserved at Milan, as the writer of our article was led to believe.

New Editions.

To their "Silver Library" Messrs. Longmans have now added Mr. Rider Haggard's "Cleopatra," which, with all the original illustrations, ought to make a very acceptable present for any lover of Mr. Rider Haggard's spirited works. The same publishers have concluded their cheap edition of Mrs. Sewell's tales and stories by adding "Home Life" and "After Life" to the series, and in this pretty form the stories ought to be popular with many readers who do not yet know them as they deserve to be known. Mr. Fisher Unwin sends us a copy of the second edition of "Mademoiselle Ixe," the first volume in his "Pseudonym Library," whose quaint appearance somewhat resembles that of a very narrow-paged French novel. The story itself is a powerful one, depicting the adventures of a Russian Nihilist in an English country-house.

To Young Mothers.

To young mothers a little volume entitled "Our Baby," by Mrs. Langton Hewer, which has just been published by Messrs J. Wright & Co., of Bristol, ought to prove very interesting and useful. It is full of practical hints plainly set forth and easily grasped and understood.

Of Interest to Teachers.

A patent has been applied for, for a school seat called the "Girder," which is built on a new principle. The seat is formed of two pieces of wood so set as to be a trifle lower in the centre than at the back or front, an arrangement which makes it much more comfortable and less tiring than the ordinary level forms. The legs and back are coupled by means of a strong iron girder, or clamp, which serves also as a stiffener for the seat. The height of the seat is seventeen inches and its width twelve inches, and as its price is by no means exorbitant, it ought to be a very useful form for school use. For giving lessons in colour, the "Registered Colour and Colour-Combination Demonstrator" has been prepared, and is published in the "Register Series," by Mr. J. H. Dawson, of Salford. The three primary colours, red, blue, and yellow, are given on gelatinous sheets, which are secured at one corner by a fastener, round which they may be revolved to make the secondary and tertiary colours, or to show the colours of the rainbow.

New York.

It was a happy idea on the part of the publishers (Messrs. Longmans) to include a volume on New York in the series of "Historical Towns." We are afraid that to many English readers it will be a revelation that New York has such claims to be considered an historical town as Mr. Theodore Roosevelt shows in an attractive volume in our hands; but so many of us visit the United States now that the work ought to have a wide circulation even apart from its intrinsic merits, which are by no means inconsiderable. The comparison presented by the three maps of New York City, at the end of the seventeenth and eighteenth centuries and in the present day respectively, is very interesting and instructive.