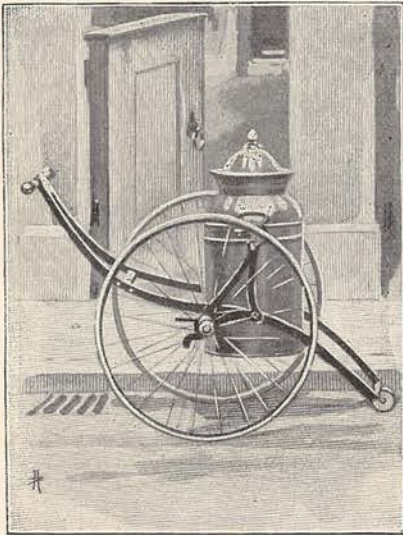


The GATHERER

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.



A Milk-Carriage.

The milk-can or "churn" on wheels which we illustrate has won the favour of experts and milkmen. It is made of steel and mounted on bicycle wheels, combining strength with lightness. It runs easily and stands firmly, and is constructed of two sizes, one to carry 8 to 12 gallons of milk, the other 14 to 16 gallons.

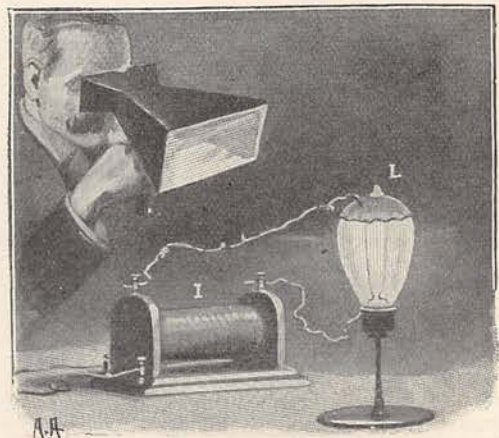
A Home-made Röntgen Apparatus.

The spread of the Röntgen method of taking photographs of unseen objects, such as the bones of the living hand, is much checked by the expensiveness of the apparatus required for the purpose. Readers may, therefore, like to know that Mr. MacNeil, of New York, has succeeded in taking very good radiographs of the kind with an ordinary electric incandescent lamp in place of the Crookes vacuum tube. His arrangement will be understood from our illustration, where L is the lamp on a wooden stand, I is an induction coil excited by a battery, not shown, and connected to the terminals of the lamp. The box held in the hand is a fenoroscope of Edison, already described

in THE GATHERER, by which the Röntgen rays can be seen. The lamp is of the Sawyer-Mann type, and made of lime or German glass. The top is covered with aluminium foil to make one terminal, and the wires of the filament form the other. When such a lamp is excited by the induction coil it emits Röntgen rays and is capable of taking radiographs. We may mention here that these rays have been used to detect the adulterations of saffron with mineral matter; and they will be found useful in other cases where minerals are employed to adulterate vegetable matter, as the minerals cast a strong "shadow."

Loder's Gazelle.

Sir Edmund Loder has solved a very difficult problem, and his name is justly associated with the pretty little animal, for which he searched so persistently, and which he was so fortunate as to discover. The first specimen ever brought alive to this country is now in the Regent's Park Gardens, having been presented to the Zoological Society by Mr. Birdwood, of Cairo. About twenty years ago Sir Edmund purchased some gazelle horns, of an unknown species in the bazaar at Biskra. All the information he could glean from the Arab dealers was that the horns belonged to a gazelle that lived



A HOME-MADE RÖNTGEN APPARATUS.

on the sand, and this was confirmed by the French name, which means "sand gazelle." In 1893, Sir Edmund, with a friend, undertook a camping trip in Algeria, to discover the home of this animal, and, if possible, to obtain specimens. After they had travelled south from Biskra for several days a

or small planets to the number of four hundred or more, which have been ascribed to the explosion or shattering of a larger planet, but are perhaps the result of a nebular ring which has not consolidated into one body. Owing to certain variations in the movement of Mercury, it has been supposed that

one or more unknown planets lie between Mercury and the sun. Indeed, one astronomer believed that he had seen two such planets crossing the disc of the sun, but his observation has not been confirmed. Professor Newcomb, the distinguished American astronomer, has been studying the secular variations of the orbits of the four inner planets—Mercury, Venus, the Earth, Mars—and has been led to conclude that they can neither be accounted for by the existence of "intra-mercurial planets," such as we have been considering, nor by the meteoric matter in space, which, by reflecting the solar radiation, is believed to cause the "zodiacal light," nor by a deviation in the ordinary laws of gravitation. The only thing which, in his opinion, would explain the perturbations is a ring or zone of planetoids outside of the planet Mercury, having a total mass from $\frac{1}{30}$ to $\frac{1}{300}$ of the mass of Venus.



LODER'S GAZELLE.

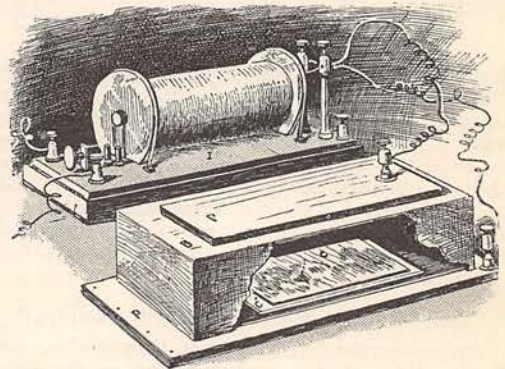
negro camel-herd came to the camp and offered to take them to the country where these gazelles lived, among the rolling sandhills; but told them they would not be able to camp very near, as there was no water for the horses and pack animals. Indeed, according to Sir Edmund Loder "this gazelle can never drink, as there is no water in the country at all, except in the comparatively deep wells dug by the natives." At last a fine male was shot, and upon the skin and skull the species was founded by Mr. Oldfield Thomas, of the British Museum (Natural History). Several small lots were afterwards seen by the party, but there was no chance of another shot. The great point of interest about this gazelle is its modification for desert life. Its light buff colour—far paler than that of any other gazelle—renders it inconspicuous; while the deeply-cleft, wide-spreading hoofs enable it to traverse the soft-yielding sand with great speed. Our illustration, from a photograph from life by Mr. C. Kearton, will give our readers an excellent idea of the form of this animal, which stands about two feet high at the shoulder. Those who visit the Zoological Gardens to see the specimen should compare its hoofs with those of Speke's antelope, and also with those of the reindeer—the same contrivance being found in all three. In Speke's antelope the hoofs spread out to support the beast as it walks over swampy ground, as do those of the reindeer to bear it up when travelling over the snow.

A New Zone of Asteroids.

It is well known that between Mars and Jupiter in the planetary system there is a belt of asteroids

Electro-photography.

Some interesting experiments which have a bearing on the great scientific question of the hour—that is to say, the nature of the Röntgen rays, and of electricity in general, have been made by MM. Jules Robinet and Auguste Perret. They will be



understood from our illustration, which represents a small cardboard box (B) with its side cut away to show a photographic negative (C) lying on a fresh photographic plate (C'). The box is placed between two metal plates (P, P) having terminals connected by wire to the poles of an induction coil (I), giving sparks $1\frac{1}{2}$ inch long. Now, if after the coil is excited by the electric current for ten or

thirteen minutes the photographic plate be developed, it will be found to show an excellent picture of the negative which had been lying above it. The photographic action appears to have been due entirely to ether-waves set up by the sparking of the coil, and the greater the number of waves set up in a second the shorter the exposure to give a good picture. Copper and lead plates are effective, but not iron or nickel plates, and they should be far enough apart not to yield a spark between them. Obviously, this new method of copying photographs—which, be it said, gives a very soft tone to the picture—might be useful when the light is bad, or even in the dark.

The Giant Tree of the Pampas.

As the sandy desert of the Sahara has its palms, so the grassy plains or "pampas" of the Argentine



Republic have their sheltering tree, the solitary "ombu," which affords a thick shade to the weary traveller. The trunk of the ombu is very thick, and its roots extend for a great distance from it—in some cases for at least 200 yards. The specimen which we illustrate grows at the old military hospital of Buenos Ayres. A hole or cell 15 feet wide has been carved in the trunk, and serves to hold three beds for the sentries to rest in during the heat of the day.

Shall We Ever Reach the Earth's Centre?

Ancient writers tell us that Empedocles, the Greek philosopher, knew everything except what was going on in the bowels of the earth, and, being unable to restrain his scientific curiosity, or piqued at his ignorance in this respect, took a "header" into the crater of Etna, in order to find out. This happened in the year 405 B.C., and ever since the wish to penetrate the mystery of the earth's interior has buzzed and fluttered as a "bee in the bonnet" of mankind. Jules Verne has given

expression to it in a romance which describes the adventures of Professor Otto Lidenbrock, who descended into the crater of Hecla and ascended to the upper world again by the crater of Etna. Some fifteen years ago, as Sir Frederick Bramwell has informed the writer, a project of boring downwards to the earth's centre attracted the attention of the late Sir William Siemens, who thought there might be something in it. Quite recently M. Berthelot, the well-known chemist and sometime Minister of Foreign Affairs in France, proposed to bore down some 10,000 feet in order to tap the central heat of the earth and apply it to industrial purposes. Obviously, too, it might be possible to attain fresh stores of useful minerals, such as metals and gems, in this way. The drill, with cutting points of diamond—or, better still, the new compound of boron and carbon, which is harder than the diamond—as well as blasting-powder, afford us the means of boring to a great depth; but evidently the time is not quite ripe yet for the attempt. Perhaps when our stock of fuel and other sources of energy are more exhausted, it will be made. Meanwhile, Lieut.-Colonel Hennebert, a French engineer, has pointed out that at a depth of 8,750 mètres—say, 30,000 feet—the pressure of the atmosphere will be three times what it is at the earth's surface, and more than the human body can stand with impunity. At a depth of five or six miles below the surface, as at the same height above it, man begins to suffer. It follows that unless he protects himself from the outer atmosphere in a closed vessel containing an atmosphere suitable to him, man will not be able to descend very far towards the earth's centre. It may be added here that Professor Mosso, of Turin, has found the breathing of a healthy man practically unaffected at a height of 20,000 feet above the sea. He himself did not suffer in his breathing when the pressure of the atmosphere was as low as 34 centimetres (about 14 inches) of mercury, but panted very much when it fell to 30 centimetres (12 inches).

A Two-headed Snake.

Benjamin Franklin compared a man with two interests or policies to a snake with two heads,

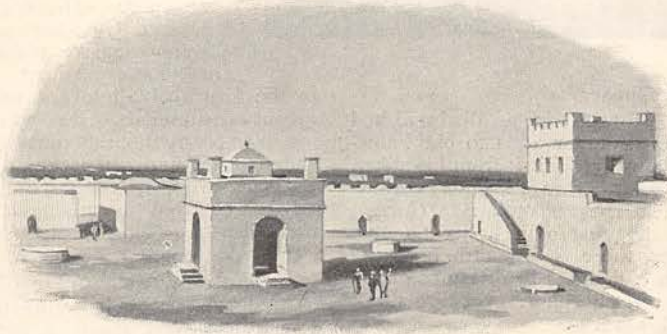


which pointing in different directions were like to catch in the underwood. That his simile was not altogether fanciful will be seen from the drawing,

which represents a double-headed snake killed on the "Forest Hall" estate of Mr. Newdigate at Knysna, South Africa, while fighting with a cat. The snake is of a dark brown colour with lighter rings, but the heads are black. It is a half-grown specimen of a non-poisonous variety, and about 8 inches long. Mr. Bancroft has also recorded the discovery of a dark brown two-headed rattle-snake 15 inches long.

The Temple of Zoroaster.

For 2,500 years the Guebres, or fire-worshippers of Asia, were in the habit of making pilgrimages to the celebrated temple of Zoroaster, their prophet. This holy shrine, although deserted by the Parsees, is still in existence. Formerly a flourishing monastery, it has come into the hands of the Russian Government, who preserve it as an interesting relic. It is situated in the mineral oil district of Baku, on the Caspian, and the religion to which it is dedicated seems to have taken its rise from the mystery of the hydrocarbon gas which impregnates the soil of the region and readily ignites. Our illustration shows the temple as it is to-day. It consists of a large square courtyard, surrounded by small chambers, formerly the cells of the monks. The square tower in the centre, from the four corners of which flames ascended, was a crematorium, where the remains of the faithful devotees were consumed; and the larger tower on the right was the residence of the chief priest, and enclosed a chapel cell, where the eternal fires burned on rude stone altars.



THE TEMPLE OF ZOROASTER.

Going to Sleep.

The fact that in Algeria there are very few maladies of the nose, ears, and throat, has caused Dr. Madeuf, an eminent French physician, to inquire into its cause, and he has found it due in a large measure to the practice of Arab mothers, who train their children to sleep on a hard bed with one or two coverlets for bedclothing, and to lie on their sides, not on their backs. It can easily be shown that the right side is preferable to the left for a person to sleep on. For one thing, the action of the heart or liver is not impeded in any way by the pressure of the body when one lies on the right side. Dr. Madeuf seems to think that sleeping on the back is worst of all. If there is any irritation of the mucous membrane of the nose, it is apt to extend to the ears and throat when one sleeps in this position. Moreover, one is very prone to breathe by the mouth, which is neither a healthy nor a seemly habit. The doctor, therefore,

counsels all mothers to accustom their children to hard beds and to sleep on their sides—above all, on their right sides. The habit formed in infancy will be useful to them in their way through life, and probably save them from more than one illness. The common habit of sleeping after a meal has lately been the subject of experiment by a German physiologist, who, by means of chemical analysis and medical examinations, has discovered that it tends to promote "acidity," or sourness of the stomach, and also to weaken the movements of the stomach which assist the process of digestion. On the other hand, to lie down after a meal without falling asleep assists these movements, and does not favour the production of too much acid. It follows that, while one should rest in a horizontal position after a meal, one should not go to sleep—a result which agrees with common experience.

Ribbed Window Glass.

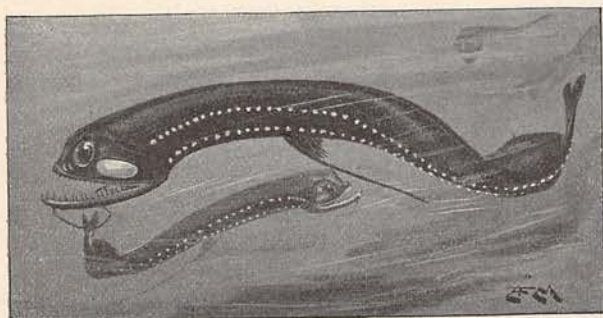
It has been found by experiment that ribbed window glass is far preferable to plain glass for the glazing of factories. The ribbed glass gives a much better illumination inside; and if the fact that it obscures the view is any objection, the lower part of the windows can be glazed with plain glass.



The Vivoscope.

The amusing scientific toy which we illustrate is an improvement on the earlier zoetrope, or "wheel of life." Coloured pictures on an endless band of paper are whirled rapidly past the eye by turning the wheel as shown, and, being blended into one by

the eyesight, give an impression of life and activity to the figures.



A Queer Fish.

The Prince of Monaco is a distinguished naturalist who every summer adds to our knowledge of the deep sea by dredging it from his steam yacht, the *Princess Alice*. One of his most curious discoveries of late is the *Photostomias Guernei*, which we illustrate. Having to live at great depths of the Atlantic, where there is very little light, the fish is provided with a double row of lamps in the shape of luminous or phosphorescent spots not unlike that of the glow-worm.

Electricity and Loss of Weight.

M. D'Arsonval, the well-known French electrician, has made the interesting discovery that the weight of certain animals, such as the guinea-pig and rabbit, can be much reduced by enclosing them in an open spiral of wire through which powerful currents of electricity rapidly changing their direction are passed. Whether the discovery will become the germ of a method of reducing obesity in the human subject has yet to be seen, but if so it will probably be popular, as it is quite painless and otherwise harmless.

An Automatic Disinfecter.

A new disinfecter for use in flushing cisterns is Lee's Automatic Disinfecter, which has recently been patented. The apparatus consists of an enamelled metal cylinder, which contains fifteen hundred charges, and requires no skilled adjustment. All that is needful is to remove a tiny wad from the perforated top of the bottle-neck which surmounts the cylinder, and then sink the cylinder as it is in the flushing cistern. The inventor claims for his apparatus that it supplies a measured quantity of disinfectant every time the flush is used, and that by its use no waste of the disinfectant is possible between flushes. A simple and efficacious preventive of dangerous disease is thus brought within reach of every householder.

Some New Books.

The deep and widespread interest which is being taken in the sufferings of the Armenians should secure a large number of readers for Edna Lyall's story "The Autobiography of a Truth," which is published by Messrs. Longmans. The hero of the tale is himself an Armenian, and the trials through which he and his companions have to pass are only too realistic. This is a story with a purpose,

but both story and purpose are good. From the same publishers we have received a handy and workmanlike little volume on "Botany for Beginners," by Mr. Henry Edmonds, B.Sc., which is to be heartily commended.—Mr. Fisher Unwin sends us "Monsieur Paulot," a quaintly dressed story of French provincial life by Sir Herbert Jennings. There is a wonderful development of plot in the story for a work of such moderate compass, and the picture of non-Parisian French life is most fascinating.—In our experience only boys keep white and other "fancy" mice, but there must be more experienced fanciers. Mr. Upcott Gill has just issued a most comprehensive manual on the subject of "Fancy Mice," which should be

in the hands of all lovers and keepers of these quaint little animals.—Messrs. Cassell are publishing in sixpenny monthly parts a new and exhaustive vade-mecum under the title of "Cassell's Family Lawyer," from whose pages may be had good advice, couched in intelligible phrases, and with no unpleasant "bill of costs" to follow.

A Kitchen Time-Table.

An ingenious kitchen time-table has just been issued by Messrs. Houlston & Sons, which will be welcomed by young housewives, as it gives at a glance the time necessary for cooking fish, meats, poultry, vegetables, baked and boiled puddings, as well as the average quantities required for three persons. The particulars are plainly printed on six cards which fit into a cloth case, and this is designed to hang or stand in the kitchen.

"A Puritan's Wife."

Readers of Mr. Max Pemberton's story, who have followed the fortunes of its hero and heroine while the story has been running through our pages, should know that the story is now published by Messrs. Cassell in a separate volume, with sixteen of Mr. Sidney Paget's illustrations.

Claims already Paid.

Our readers have not been slow to take advantage of the Free Burglary Insurance offered to subscribers. We go to press with the holiday season only half-finished, and the evenings still fairly light. But the "enterprising burglar" has been—enterprising, and in two cases compensation has been paid, the recipients being,

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| MR. W. J. WRIGHT | ... | Denmark Hill. |
| MR. J. CHISHOLM | ... | ... Fratton. |

The conditions under which this free insurance is offered are clearly stated in our advertisement pages. Should any readers who have complied with these regulations be so unfortunate as to become the victims of "cracksmen," they should lose no time in communicating with the Ocean Accident and Guarantee Corporation.

Summary Competition.

The postcards are now under consideration, and the Editor hopes to be in a position to publish the award in the next number of the MAGAZINE.