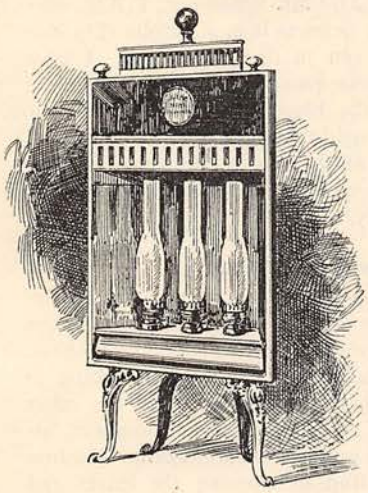
THE GATHERER:

AN ILLUSTRATED RECORD OF INVENTION, DISCOVERY, 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 Combined Oil and Gas Stove.



A combined oil and gas stove has lately been brought under our notice, which is likely to be useful. As shown in the illustration, it contains three burners which can be fed with oil or gas. The back and sides of the stove are made of iron lined with mirror glass, which is heat proof and reflects the heat through the open front. The stove yields both light and heat, and the cost for oil is said to be only a farthing per hour.

A Recording Receipt Stamp.

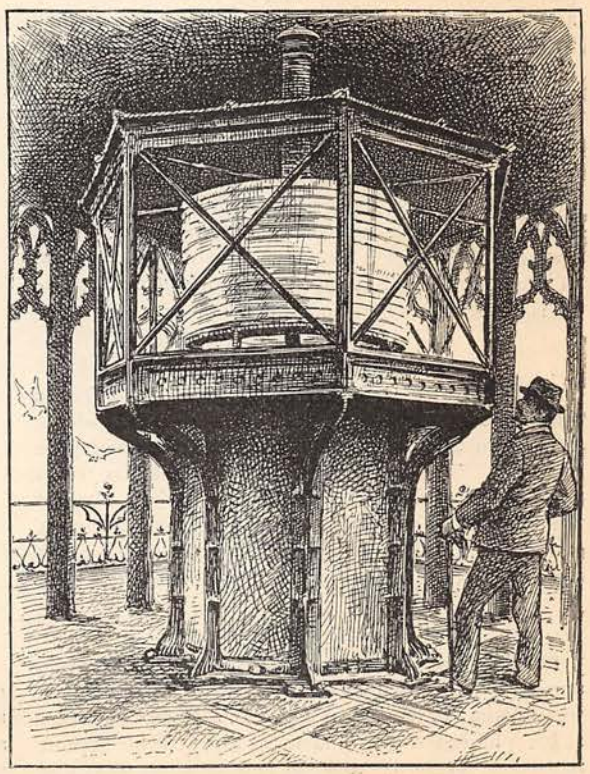
A receipt stamp, not quite five inches in height, measuring only two and a half inches from back to front, and two inches in width, has just been patented. So compact is this little machine that, on being properly set, it will not only stamp a receipt with a dated note of the payment and the amount received, but also impresses upon a tape, securely locked in its interior, a duplicate record of the amount stamped upon the receipt given to the payer. Three wheels at the side of the apparatus enable the person using it to control the amount which it shall register; but he can only make the stamp work by striking the handle at the top which inevitably and automatically repeats the entry of the sum accounted for upon the slip inside, and presents a blank space for the following entry. The key is, of course, retained by the owner, who has therefore a perfect check upon the amounts for which receipts are given by his *employés*.

The Parks of Colorado.

Dr. Theodore Williams, President of the Royal Meteorological Society, recently read a paper on Colorado as a sanatorium. He considers the "parks," or magnificent basins of park-like country interspersed with pines and backed by the Rocky Mountains, as full of interest for the artist, sportsman, and seeker of health. Most of them are 7,000 to 9,000 feet above the sea-level, yet the winter is so mild that Herefordshire cattle lie out and fatten on the grass. The skies are so bright that not more than half a day a week in winter is overcast, and the rainfall is only 14 inches a year. Sunshine is abundant, but the heat is tempered with breezes or winds, and the atmosphere is often highly electric. The exhilarating atmosphere has already restored great numbers of invalids, more especially consumptives, to active life.

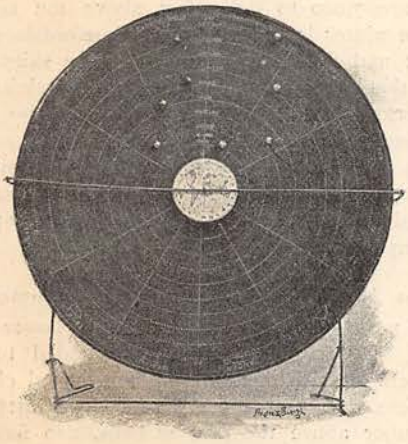
The New Signal Light of the Commons.

The new signal light on the Clock Tower of the House of Commons, which is intended to show Members of Parliament in the West End clubs or elsewhere that the House is sitting, is installed in a chamber above the peal of bells, 250 feet high. The lantern, as shown in the figure, is a second-order dioptric apparatus of highly-polished lenses, surrounding a Wigham lighthouse burner of sixty-eight gas



THE SIGNAL LIGHT, WESTMINSTER.

jets, producing a mass of flame eight inches in diameter and six inches high, which consumes 240 cubic feet of gas per hour, and has an illuminating power of 2,400 candles. A glazed lantern, twelve feet high and nine feet in diameter, encloses the whole. The old lamp which it replaced could only be seen through an arc of a circle of 210 degrees, corresponding to the West End district ; and it is perhaps a sign of the times that the new light is visible all round.



The Celestium.

The above woodcut shows an ingenious astronomical calendar for recording in miniature the daily and hourly positions of the heavenly bodies as they traverse the different signs of the zodiac. The earth is at the centre, and the moon, being the nearest heavenly body, comes next. Then follow the sun and planets in the order of their vicinity to the earth. These bodies are represented by round-headed pins or pegs, which are moved by the user into the holes provided for them daily or hourly, according to the instructions in the ephemeris. It will be seen that the celestium gives a bird's-eye view of the condition of the solar system at any time, and is likely to prove serviceable to teachers and students.

An Island of Salt.

In the delta of the Mississippi near the Bayon Teche there is an island known as Avery's Island, which, apart from the surface soil, appears to consist of pure rock salt. The salt occurs in a more or less transparent mass, and is quarried for export. The whole of the surrounding region is extremely interesting from a geological as well as a historical point of view, it being a remnant of old France in the New World.

Mountain Sickness.

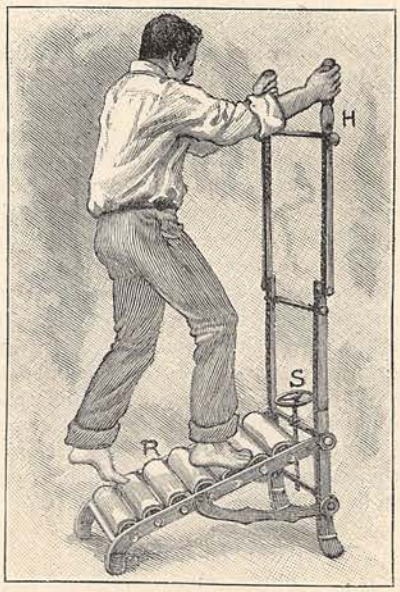
Mr. Whymper in his most interesting work, "Travels among the Great Andes of the Equator," has made a special study of the illness which attacks mountaineers at great altitudes, and renders the ascent of the highest mountains dangerous to some persons apart from any perils of the route. Not long ago Mr. Dent, in a paper on the subject of climbing Mount Everest in the Himalayas, went so far as to say that only persons of strong vitality and full blood ought to attempt the highest peaks. The fact that one of Mr. Whymper's party was far from robust and even delicate, and yet escaped the affection altogether, is, however, against this conclusion. Curiously enough it was noticed that the climbers lost their appetite, and when they did not eat so much they recovered from the oppression and giddiness of the sickness. These anomalies are intelligently explained by Mr. Bosanquet, F.R.S., who shows that mountain sickness is in all probability due to deficiency of oxygen in the rarefied air of high altitudes, and as a consequence the imperfect combustion or oxidation of the blood. The best remedy for mountain sickness would therefore be, not an artificial supply of oxygen, as has been suggested, but a preliminary training on short commons and a partial starvation on the way.

Yew Tree Poison.

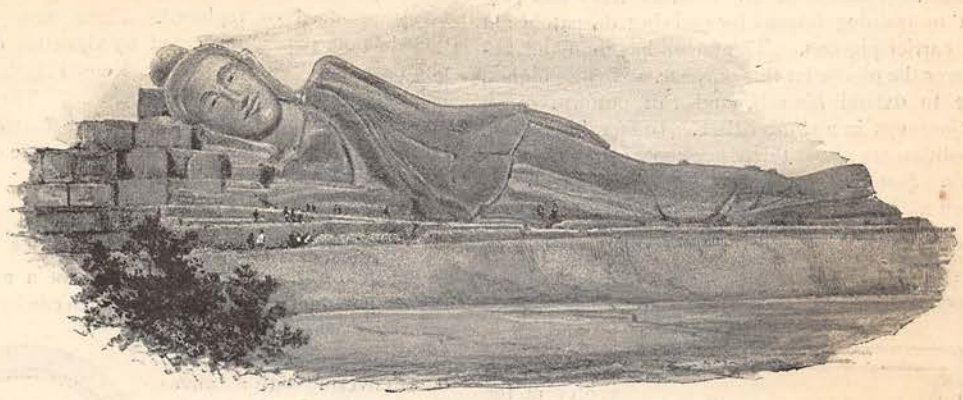
It has recently been determined that both the male and female yew tree secrete one or more poisonous alkaloids in their leaves and berries. The flesh of the berry is, however, harmless, and may, according to Dr. Munro and others, be eaten, provided the other parts are left. The subject is by no means well investigated yet, and it would be well to caution children against eating the fruit or chewing the leaves and twigs.

A Gymnastic Mill.

The apparatus we illustrate has, we understand, been brought out in France, and is designed for the



purpose of affording a gentle exercise akin to walking up a slope. This gymnastic treadmill consists of a series of rollers, R, covered with carpet or india-rubber, and inclined at an angle to the horizontal. Two uprights, H, for grasping with the hands to steady



A STUPENDOUS STATUE.

the operator, rise like the back of a chair as shown. In treading on the rollers these tend to carry the feet downwards, and in order to keep the position it is necessary to walk rapidly or even run. The extent of movement may be graduated by raising or lowering the frame of the rollers by means of the screw, S, and the higher the inclined plane is set the more violent is the exercise.

A Stupendous Statue.

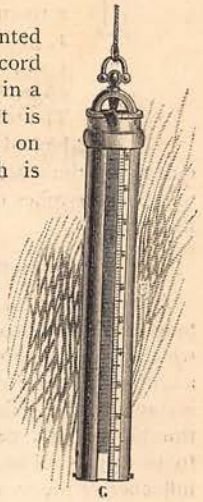
In the year 1881 a railway contractor, searching for ballast in a jungle of the province of Pegu, in Burmah, accidentally came upon an enormous recumbent statue of Buddha which had been lost to sight and memory for over a hundred years. Our illustration represents this curious work which has recently been examined by Major Temple, who ascribes its construction to the fifteenth century. It is 181 feet long and 46 feet high at the shoulders. The monument is built of brick and is finely proportioned throughout. Burmah, with its sacred city of Pagan, offers a rich field for archæological exploration. On the Irrawaddy, below Prome, there is a cliff two miles long and 300 feet high which is carved with innumerable statues of Buddha, tier on tier from top to bottom, some of the figures being 20 feet high and richly gilt.

The Pigmies of Spain.

As might have been expected, the dwarf race of Morocco and the Atlas have been traced to Europe, and fairly pure types are found in Spain, especially in the province of Gerona. These people are only 3 feet 7 inches to 3 feet 9 inches high, and are otherwise characterised by a yellow skin, broad square faces, Mongolian eyes, and red hair of a woolly texture. Specimens of them are occasionally to be seen in the market of Salamanca ; and there is said to be a number in the Col de Tosas and the valley of Ribas several hours by rail from Toulouse. It is not improbable that the Mongolian eye which is observed in a small percentage of Welsh and English people is derived by inheritance from the Iberian pigmies or a common ancestry.

A Water Sounder.

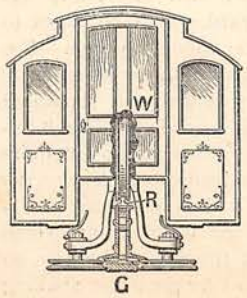
The apparatus which is represented in our engraving is designed to record the depth of water, for instance, in a ship's hold or storage tanks. It is based on the action of water on chemically prepared paper which is not acted upon by oil. A hollow cylinder of brass, having a longitudinal groove, G, on each side, in which ribbons of the paper are placed and measured by a graduated scale, is lowered into the water by means of a cord, and the height to which the water reaches is indicated by the level of the chemical change which has taken place in the paper.



G

The Pruynway.

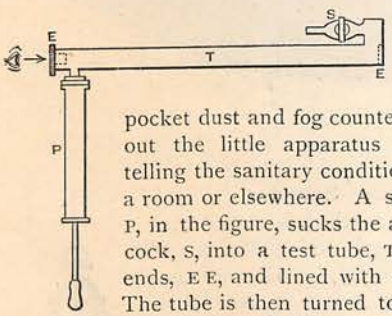
The completion of the electrical elevated railway at Liverpool points to a hopeful means of travelling in overcrowded thoroughfares, where tunnelling is out of the question. A single-rail system of conveying passengers has been introduced by Mr. H. S. Pruyn of New York, and some idea of it will be gathered from our illustration, which represents a cross-section of the line, showing the iron girder, G, supporting the rail, R, on which rests the driving wheel, W. The latter is actuated by an electric motor deriving its current from conductors running along each side of the track. Each car is self-propelling, and the weight of the passengers is brought to bear below the level of the rail, and the whole is so constructed as to give steadiness of travel combined with safety.



Carrier Falcons.

Lieutenant Smoiloff of the Russian navy has succeeded in training falcons for carrying despatches in lieu of carrier pigeons. The falcon has many advantages over the pigeon for this purpose. He flies higher, is able to defend himself, and can perform much longer journeys in a shorter time. In fact, his powers of expedition are about thirty per cent. better than the pigeon's. Some of his birds have carried a heavy despatch a distance of 250 miles in something over 7 hours.

The Koniscope.



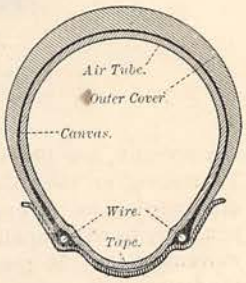
Mr. John Aitken, F.R.S., inventor of the pocket dust and fog counters, has brought out the little apparatus illustrated for telling the sanitary condition of the air in a room or elsewhere. A small air-pump, P, in the figure, sucks the air by the stop-cock, S, into a test tube, T, having glass ends, E E, and lined with vitreous paper. The tube is then turned to the light and looked through like a spy-glass. The colour of the enclosed air, taken together with the number of strokes of the air-pump, is an indication of its purity

Something for Everybody.

A long and close acquaintance with inventions has taught us that it is often the seemingly small discoveries which make the greatest advance and make the best additions to our every-day home comforts. Here, for instance, is a group of novelties. An adjustable thimble appeals peculiarly to ladies, who know how frequently one's fingers seem to vary in size under the influence of the weather and our bodily health. Well, to obviate the difficulty thus caused, the lower part of this thimble is slotted and covered with a screw-thread on which works an ornamental ring, which, of course, compresses the segments of the thimble as it is screwed down and so reduces its size.—In large institutions, such as schools and hotels, it is important to have towels very plainly marked. We are glad then to draw attention to the new "Genoese" towels which, in the special manner of their bordering, afford opportunities for names, initials, or devices to be woven in, in a permanent and not unpleasing method.—An Englishman in Boulogne, Mr. Merridew, has patented a new reply letter-card, which he hopes to see brought into use for international postage. The entire card, both for message and reply, is ingeniously cut in one piece, and is readily folded and separated by means of the perforations provided.—The "Reform" violin bow-holder appeals to a public not quite so extensive as some of those novelties which we have noticed already. It is easily fixed in any case, and is fitted with an ebony top secured by a spring, which keeps it either open or shut at the will of the user, so that the bow is held firmly, however great the shaking to which the case may be subjected while the bow is at rest, and there is no danger to its hair when it is being removed or replaced.—Three new series of "Owl" note-paper, illustrated by vignettes of original photographs by Mr. W. Savile Kent, F.L.S., are published by the London Stereoscopic Co. The vignettes represent varying droll attitudes of an Australian bird, familiarly known as the "morepork." The effect produced is often very quaint.

A Detachable Tire for Cycles.

Our figure shows a cross-section of a new india-rubber pneumatic tire for cycles which can be detached from the wheel for repair. It consists of two parts, an outer covering with a canvas lining and an inside air-tube. Instead of being bound on the tire by canvas it is attached by two wires, which run through both edges of the outer covering and when in the run fit into two grooves. The tire is removed by placing the hand under the wired edge and running it round the wheel. The valve is attached to the air-tube, and by loosing a check-nut can be passed through the rim and removed.



The Gila Monster.

The animal called the Gila monster is a native of Arizona and the arid south-western regions of the United States. It is, in fact, a species of lizard, and it owes its forbidding name to the dangerous character of its bite. Every year a number of lives are lost from this cause, and yet naturalists have denied that it is venomous. A recent observer has shown that the source of the poison is the saliva of the mouth, which, when it enters the blood through a scratch or an old wound, produces an effect similar to a rattlesnake bite. Intense suffering follows, and the blood is decomposed. This is probably the true explanation of the mystery, as venom is known to exist in a more or less pronounced form in the saliva of many animals, even horses and dogs.

The Convexity of the Eye.

It has been observed that in the antique Greek statues the male eye is frequently more convex than the female eye, and the older anatomists have observed that such a difference does exist in nature; but quite recently Herr Greef has actually measured the disparity, and finds that while the average radius of the cornea, or apple of the eye, is 7·83 millimetres for men, it is only 7·82 for women. Other measurements by Donders give 7·858 and 7·799 millimetres respectively. The difference is so slight that the Greeks appear to have exaggerated it for an artistic purpose. Their fidelity to nature was, it is well-known, governed by artistic motives.