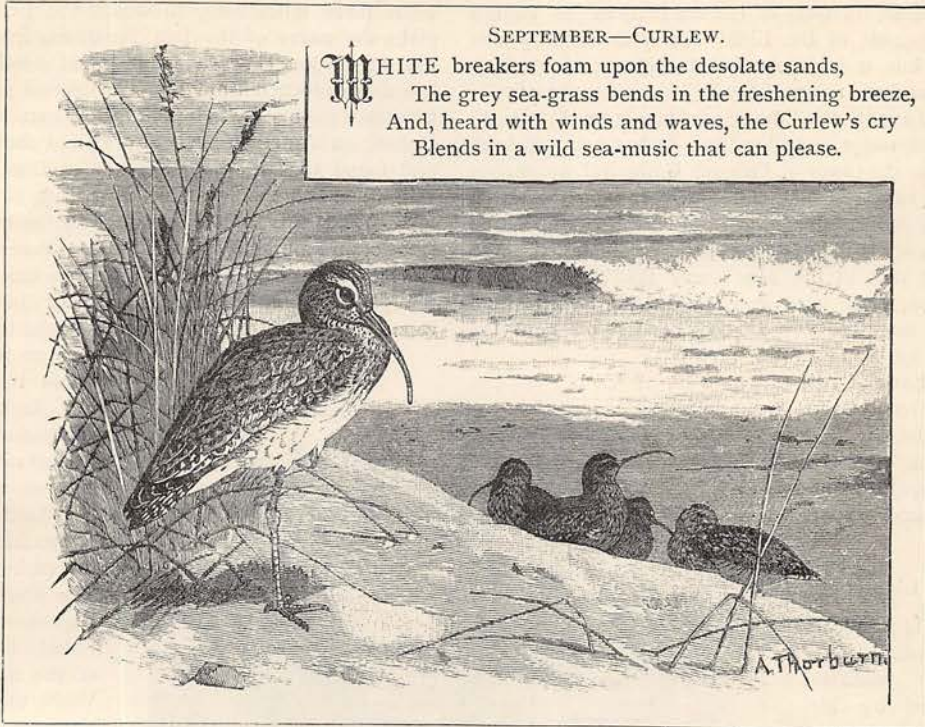


BIRDS OF THE MONTHS.

SEPTEMBER—CURLEW.

WHITE breakers foam upon the desolate sands,
The grey sea-grass bends in the freshening breeze,
And, heard with winds and waves, the Curlew's cry
Blends in a wild sea-music that can please.



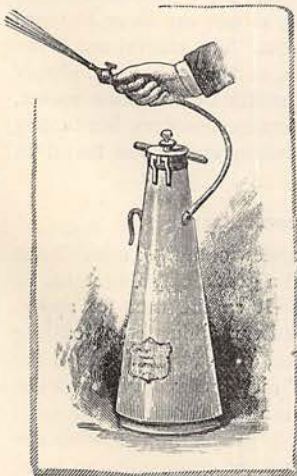
THE GATHERER:

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 Leona Extincteur.

The "Leona" Extincteur, which is shown in the figure, is recommended by the insurance companies instead of water-buckets. The fluid it contains does not freeze in cold weather, and has a special power of extinguishing fire by the gases it develops. It is stated to be much stronger than that in the earlier extincteurs and hand-grenades, and is simply squirted on the fire. A fresh supply can very easily be added



to the holder when the charge has been exhausted.

A Pad for Violinists.

A handy pad for violinists has recently been patented, and affords a ready means of keeping the instrument in position. The pad is backed with velvet, which is continued to form a flap that is tucked under the collar or lappel of the waistcoat, so as to keep the pad in its place. The front of the pad is covered with a material—apparently of the nature of india-rubber—on which the end of the violin will not slip. The new pad has been tried by several eminent violinists, who concur in commending it to their fellow-musicians.

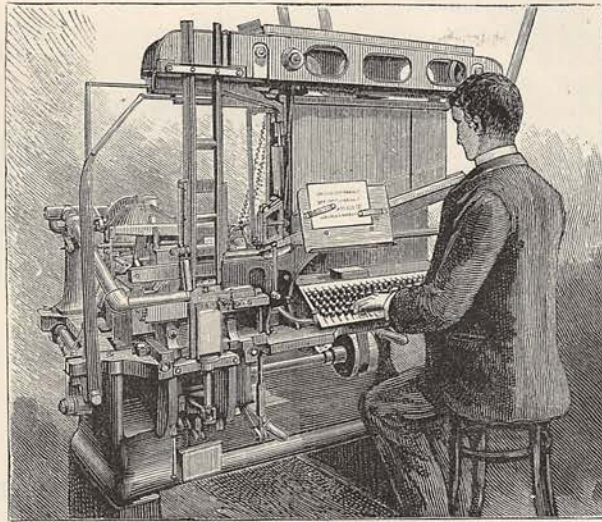
The Eiffel Tower in Science.

M. Janssen, the well-known French astronomer, has examined the spectrum of the great electric light on the Eiffel Tower, from his observatory at Meudon, in order to find whether the oxygen rays in the solar spectrum are due to oxygen in the sun itself or to the action of the earth's atmosphere. So far as his

experiments go, these rays appear to be exclusively of terrestrial origin; but M. Jannsen hopes to make some further observations of a more rigorous kind. The luminous intensity of the arc lamp in the lantern on the summit of the Eiffel Tower is about 55,000 candles, but it is intensified by lenses to 700,000 candles, and the range of the light in clear weather is estimated at 127 miles, though the curvature of the earth limits this range considerably. It has actually been seen from the tower of Orleans Cathedral, a distance of 112 kilometres, or 70 miles. It is certain that the signal-light of the tower from its elevated position and intensity is the most powerful yet installed. We may add that in the Machinery Hall of the Paris Exhibition, there is a projector with an electric light giving a beam of 600,000,000 candle-power at the distance of a metre. Even at 100 metres (109 yards) from the lamp, the intensity of the light is equal to that of the noonday sun.

The Linotype.

An ingenious type-founding and setting machine, invented by Mr. Mergenthaler, of Baltimore, U.S., has been introduced into London. As will be seen from our illustration, which represents one in operation, there is a keyboard on which the compositor plays, having the "copy" in front of him. In this way a series of female type, or matrices, are liberated from their holders, and composed in a line on the left of the operator. This line, on his touching a special key, is carried into a mould, into which molten metal is pumped, and a bar is cast, having in relief the characters of the matrices. The bar is then automatically ejected into a galley, where it is put in position for immediate use, while the matrices are redistributed. A novel feature of the machine is its ability to cast the same line over and over again. Moreover, the column can be easily changed to any desired width, and spaced out, adjusted, and leaded automatically. As nothing but liquid metal comes against the edges of the matrices, these last a long time. The linotype is in use in some newspaper offices in America. Forty-two machines are engaged in printing the *New York Tribune*, and it appears from the tests there made that the linotype effects a saving of about 70 per cent. on the older process of composing, but the work produced is not yet technically so perfect.



THE LINOTYPE.

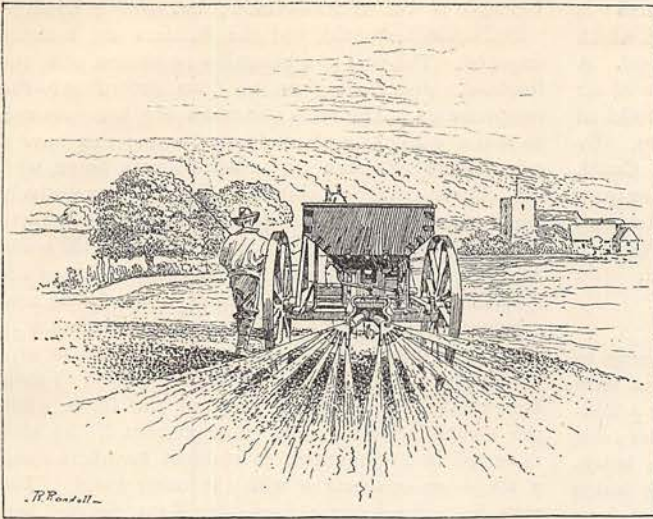
The Bell Mountain.

On the Gulf of Suez, about four hours and a half from Tor, there is an eminence 1,200 feet high and some three miles long, to which the Bedouin have given the name of the Bell Mountain, from the fact that at certain times a sound as of a bell tolling is heard to proceed from it. The legend goes that a Christian monastery is buried in its heart. Mr. H. C. Bolton, an American, recently visited the mountain, and found that the sound emanated from a slope of yellow sand covering the north-west side of the mountain. When this sand is disturbed by the wind, or the steps of an animal, it gives out a deep note resembling the bass tone of an organ. Mr. Bolton has discovered the phenomenon in another part of the Desert of Sinai, at Wadi Werdan, about five minutes from the caravan track. It is called Ramadan by the Arabs, and is situated at the end of a short range of hills. The sound could be heard at the distance of 100 feet when disturbed by the hands. The phenomenon at Riglirawan, north of Cabul, is probably of the same order. While upon this subject, we may mention that not far from Dinan, on the banks of the Arguenon in Brittany, there is a heap of stones which emit musical notes when struck, and they are called by the peasants the "Sounding Stones."

Guildo." The rock is amphibole, a silicate of iron, manganese, and lime. The stones are three in number, and of a prismatic shape. The central one is the most sonorous when struck, and emits a clear, silvery tone, like that from a bell struck by a wooden mallet. They do not appear to be erratic boulders, but belong to the place, and other sounding stones are found in their vicinity.

The Strawsoniser.

Our illustration gives a view of a new agricultural implement, which attracted a good deal of attention at the recent Windsor Show. It can be used for applying liquid or solid insect-killers, or for broad-casting seeds and fertilisers. A fan, driven by the axle of the machine, creates a blast of air which mingles with the falling grain or liquid and scatters it over a wide area. The fan makes 3,250 revolutions a minute when the machine is moving at the rate of three miles an hour. The strawsoniser will distribute nitrates, lime, phosphates, soot, and so forth, down to $\frac{1}{4}$ cwt. per acre,



THE STRAWSONISER.

and liquids in a spray down to one gallon per acre. During recent trials at the Queen's Flemish Farm, Windsor, one machine distributed a liquid insecticide at the rate of two gallons per acre, every square inch being sprinkled. Barley was sown from another machine, at the rate of three bushels per acre, over a width of eighteen feet. At this rate some thirty or forty acres can be sown in a day.

Flowers and Health.

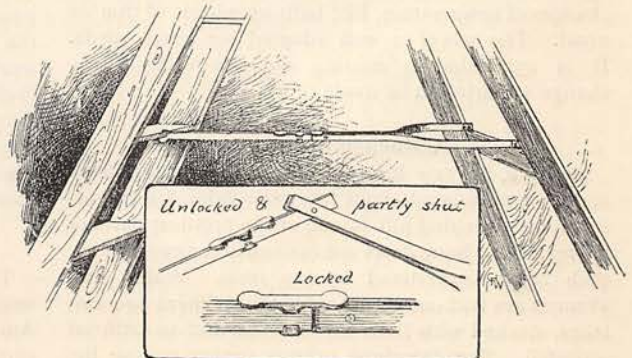
A recent writer, M. Ungerer, expresses his belief that the perfumes of flowers, and their essences, have a healthy effect on the constitution, and that residence in a perfumed atmosphere tends to prevent pulmonary affections. He mentions that in the town of La Grasse, where perfumes are manufactured, chest disease is very rare, owing to the scents of the distilleries. In a recent GATHERER we mentioned that a well-known firm of druggists in London now scent the air which ventilates their offices with piñol, or essence of pine, and eucalyptia, or essence of eucalyptus. The smoke of burning peat is also believed by some to have a therapeutic value in preventing chest complaints.

A Safety Step-Ladder.

A new step-ladder has recently been patented by Mr. William Glazier, in which the place of the old-fashioned cord is taken by the jointed metal stay shown in our illustration. The stay is fitted with a knee-joint, on the single arm of which is fitted a sliding clip which is passed over the joint, thus rendering it perfectly firm and safe. There are probably few households wherein at least one accident from the use of the old-fashioned collapsible step-ladder has not taken place; and we have every confidence in drawing the attention of housewives to this latest improvement, which, with ordinary care, frees the use of the necessary step-ladder from all danger.

The Great Terella.

At the Paris Exhibition, near the foot of the Eiffel Tower, there is a model of the earth, placed under a dome, between the Palais des Arts Libéraux and the Palais des Enfants, which is one of the most remarkable attractions. This terella is constructed on a scale of one millimetre to a kilometre, and is therefore one-millionth of the size of the earth itself. The surface is laid with paste-board covered with a hard plaster, and all the details of the earth's surface are painted on it. The diameter of the globe is about forty-two feet, the skeleton being of wrought iron, and the skin of wood, with the painted panels of mill-board fitted over it. There is a platform with several stairs for enabling people to examine the North Pole; and the globe itself turns easily on its axis by means of a simple gearing, so that every part of it can be seen. The surface comprises 525 square feet, and admits of the general contour of the different countries, and the outlines of their cities, being shown. Paris, for example, is nearly a centimetre long, and the Exhibition is marked within it. This great globe has an educational value far in excess of the best atlases, for it shows us the relative positions, the sizes, and characteristics of the different continents, oceans, and their divisions. It puts before us, in fact, a view of the whole earth in miniature, and thus achieves what has only been done hitherto in a fragmentary and imperfect manner by means of profile maps and the imagination. The mountains are properly shaded, the depths of the oceans indicated by depth of colouring, the marine routes are shown in different colours and the telegraph cables by gilt lines. Various accessories are also found in the building, tables of population, sections of the earth's crust, the heights of mountains, the limits of vegetation, and many other geographical facts. The model is portable, and will probably find a permanent home in Paris. We may also mention here that at the annual soirée of the Royal Society there was an ingenious model of the

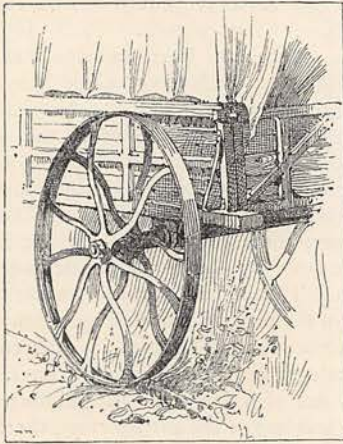


A SAFETY STEP-LADDER.

ocean currents exhibited by Mr. A. W. Clayden. It consisted of a shallow tank containing water, in which were placed models of the continents cut in wood. A bellows, worked by the foot, set up a series of air currents representing the trade winds, and produced the ocean currents, including the Gulf Stream. By taking out a block representing the Panama Canal, Mr. Clayden showed how the completion of that work could not sensibly influence the course of the Gulf Stream; but if a considerable part of Central America were to disappear the stream would be diverted.

A Safety Purse.

A purse has just been brought out which seems to offer many advantages for travellers. It is in form like an ordinary Portsea purse, fastening with a folding flap on a stud, but there are stitched to the sides two frogs which are to be buttoned to the side brace-buttons of the trousers, so as to hold the purse inside the waist-band. In this position the purse may be readily opened by the wearer, but it would certainly be difficult, if not impossible, for any pickpocket to open it without the wearer perceiving it.



Steel Wheels.

The wheel which we illustrate has been introduced for use on Colonial transport waggons. It is made of the best cast steel, in one piece, without any fastenings, and hence it is not rendered troublesome under changes of temperature, like built-up wheels of iron or wood. The wheel is well adapted for rough roads. It is applicable to existing waggons without any change requiring to be made in it.

A Bungalow Village.

Bellagio, the new bungalow town, or rather village and club, is situated about two miles from East Grinstead, on a wooded hill in one of the prettiest parts of Surrey. The bungalows are erected in the copsewood, each being sequestered by the trees. Walks and avenues are laid out all over the hill. There are two lakes, stocked with Loch Leven trout, and an artificial waterfall. The Dormans railway station is close by, and there are many fine drives in the neighbourhood.

Bellagio is yet in its infancy; but over a hundred "lots" have been sold, and the builders are actively engaged. The cost of a bungalow residence, with the freehold, varies from £300 to £700, according to the requirements. The rates and taxes are but nominal, so that a gentleman of moderate fortune can have a comfortable suburban or, rather, country home, with the conveniences of club life, for a comparatively small outlay. Should he go abroad for a time, there would probably be little difficulty in letting his home to another tenant, with the right of membership of the club thrown in. The club-house is a handsome and spacious building, with plenty of accommodation in the way of beds, and the steward undertakes to supply meals to members either in the club or at their bungalows, and to take charge of the latter when the owner is away. The management of the club is vested in a committee of resident members; and a telephone connects it with the outer world. The view from the tower ranges over Kent, Surrey, and Sussex. The grounds behind are laid out in gardens and tennis-lawns; while polo, cricket, and recreation fields have been provided, as well as fruit-gardens and forcing-houses. There is an unfailing supply of spring-water on the hill; and it is proposed to erect swimming-baths next year. The woodland lakes cover twenty acres, and will be open for fishing during the present season. Enough, we think, has been said to show that Bellagio, if only beginning its career, promises to have a prosperous one, and bids fair to become a very pleasant residence in course of time. Doubtless, if successful, the example it offers will be followed in other parts of the country.

Poisonous Tin-Plates.

Tin-plates are so much used for preserving foods, that it is well to point out that if the tin be adulterated with lead (as is done when the price of tin is high) the acids of fruits produce a lead poison. So serious is the matter considered in America, that the attention of the Government has been called to it. As tin is now very dear, the necessity of caution is all the greater.

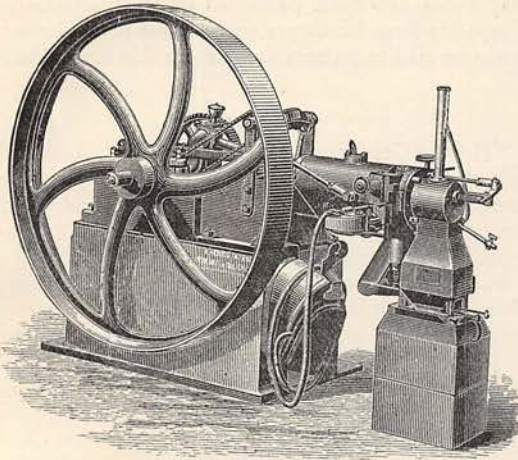
A Steam-Lifeboat.

Prizes offered by the Royal National Lifeboat Institution have brought forth a steam-lifeboat. The new vessel is to be built 50 feet long and 12 feet in the beam. She will be propelled by a turbine wheel worked by an engine developing 170 horse-power. Owing to the cost, it will not be possible to have such a vessel at many stations; but the step appears to be one in the right direction, and it is to be hoped that the new craft will prove as successful as the model seems to represent.

Expanding Hoops by Electricity.

The electric current has recently been employed in welding metals and tempering steel springs. An American electrician has also devised a method of expanding hoops and wheel-tires by heating them with the current. It is claimed for the new process

that the heat is more uniformly distributed than with gas-furnaces or piles of embers. The current is brought by wires connected to opposite points on the tire, and divides equally through each half of the ring.



A PARAFFIN-OIL ENGINE.—FIG. 1.

Curing Damp Walls.

According to a German architectural paper, a wash of paraffin wax dissolved in heavy coal-tar oil in the proportion of one part of paraffin to two and a half or three parts of oil is an excellent preventive of damp in walls. The wax is melted by the application of a little heat, and kept fluid during use by dipping the vessel of wash in warm water. We may add that two parts of paraffin wax melted up with one part of vaseline makes a good pomade for preventing solutions from creeping over the lips of glass vessels, such as accumulators and voltaic cells.

The Brighton Exhibition.

An International Exhibition of arts, sciences, and manufactures will be open from October to December in Brighton. The usual gold, silver, and bronze medals will be awarded to exhibitors. The exhibits will range over a wide field of industry, from machinery and construction, sanitation and ventilation, horticulture and foods, to decoration, domestic appliances, sports and pastimes, electricity, carriages, and musical instruments. Special attractions will be added to the Exhibition in the form of concerts and illuminated fountains.

Electricity of the Heart.

Dr. Augustus Waller, of the Hospital Schools, has recently made a number of experiments, showing that it is possible to detect, by existing electrical instruments, the electric currents generated at each beat of the heart. Two people holding each other by the hand, and connected with a capillary electrometer, give evidence of electrical shocks through each other. The hands of a single subject, dipped into two basins of water in connection with the electrometer, give a deflection of the instrument at every beat of the pulse.

Frozen Milk.

At a recent meeting of the Agricultural Society of France, M. Guerin, of Grandvilles in the Vosges, described a method of preserving and transporting milk by simply freezing it and thawing it again when required for use. The freezing can be done with ordinary ice machines. The advantage of the method is that the milk does not suffer in taste or quality. It yields fresh cream like new milk, while butter and cheese can be prepared from it. There is, therefore, a probability that we may, ere long, import milk from Australia or America.

A Paraffin-Oil Engine.

The engine which we illustrate in Fig. 1 has been designed to burn kerosene or paraffin in the cylinder, just as a gas-engine burns coal-gas. The paraffin is first converted into vapour, and then exploded in the cylinder by the flame of a paraffin lamp. The oil is also vaporised by heating its reservoir with a paraffin lamp. The engine is said to run without attention for several hours, and to require very little cleaning. It can be started in fifteen minutes, and there is no danger in its use. The cost of working is given as 1d. to 1½d. per horse-power per hour.

We may add that portable engines, working with common mineral oils, have also been introduced, and are found useful by farmers for thrashing and such-like purposes. Fig. 2 represents one of 6 horse-power nominal, but various sizes can be obtained, according to the work to be done. A 10 horse-power engine of this kind has been employed for some time

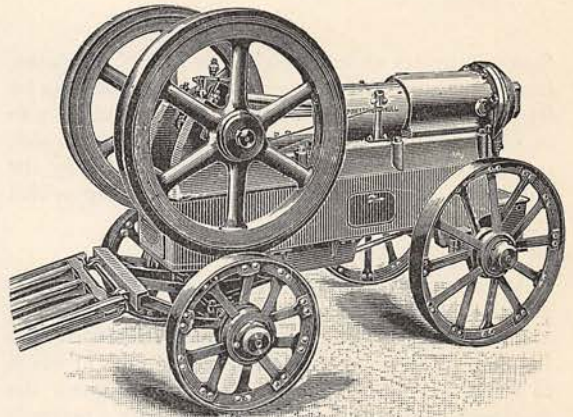


FIG. 2.

past in pumping a Welsh mine. The oil is ignited by means of the electric spark if desired. Such an engine has the advantages of a gas-engine without being dependent on a gas supply.

The Humming-Bird and Mantis.

Mr. G. W. Alexander, of Charleston, South Carolina, has reported a curious struggle between a humming-bird and an insect known as the "Johnny-cock-horse," a species of mantis common in those parts. Hearing a cry of pain proceeding from a vine in his

garden, he found a humming-bird struggling violently in the clutches of the mantis. It was wounded under the wing by the mandibles of the insect, and though tenderly cared for, it unfortunately perished during the night.

A Cattle Weigher.

It is becoming the practice of breeders to sell their cattle by weight, and hence some special weighing machines for the purpose have been designed. Hitherto these machines have been fixtures, but they are now made to run on wheels and be moved about. The



figure illustrates an iron weigher for general purposes, having the steelyard in a cast-iron box which can be let into the ground. It is constructed to weigh up to two tons. Other machines are made of timber, and, in cases where the carpentry can be supplied by the purchaser, the necessary metal work is provided separately.

A Message Cabinet.

An ingenious machine for writing and delivering messages to persons at railway stations, or in clubs and other public buildings, has been introduced into London. The apparatus consists of a desk at which to write the message, and a cabinet to contain the messages left in charge. In order to write a message a penny is dropped into a slit of the desk, thus releasing a locked handle, which, on being pulled out, discloses a paper on the desk. The message is written on this by a pencil provided, and the initials of the sender, or other sign, are written on a second slip of paper always exposed to view. On turning the handle back, the message disappears into the cabinet above. The person who expects the message, on examining the machine, sees the initials or sign of the sender, and on dropping a penny into a slit in the cabinet, is enabled to read through a window by turning a handle. The machine while in working order does not forget to reveal its secrets.

"Under a Strange Mask."

Readers of CASSELL'S MAGAZINE who remember Mr. Frank Barrett's serial story in our pages a few months ago—and who does not?—will be glad to hear that it has now been published by Messrs. Cassell in a separate form for library use. Many readers will no doubt be glad to possess the story in this handy shape.

"Strength."

"How to Get Strong and Keep Strong" is the subtitle of a little work by the late R. A. Proctor, whose title heads this paragraph. Practical and chatty throughout, it well deserves careful consideration—especially at the hands of those who are addicted to "running down" or "over-doing things." Some supplementary chapters on rowing and swimming are very interesting and instructive. There are chapters of the work specially addressed to ladies on certain aspects of dress reform, to which we would draw particular attention.

A Hero Indeed.

The world is poorer by the death of Father Damien, the devoted missionary to the lepers in Molokai; but it is the richer by the example he has left of heroic self-sacrifice on behalf of the suffering and helpless. Mr. Edward Clifford has told in "Father Damien" (Macmillan) the story of his journey to visit the missionary, and of the time he spent with him on the island, where for fifteen years Damien had laboured among the lepers. If only that he has shown us something more of a remarkable and heroic man, we must feel grateful to Mr. Clifford for his work.

A Picture of Central Africa.

One of Bishop Hannington's companions, the Rev. R. P. Ashe, has told in "Two Kings of Uganda" (Sampson Low and Co.) the story of his six years' residence among the little-known Baganda. The two kings under whom he lived there, were the famous Mutesa and his bloodthirsty son, Mwanga, the latter of whom was responsible for Bishop Hannington's death. The account which Mr. Ashe gives of the constitution of Uganda is very interesting. Something very nearly approaching the feudal system is in full operation. Orders pass, in turn, to Great Chief, Lesser Chief, and so on down to the slaves, who are unfortunately very numerous. The king's chief adviser seems to be the Katikiro, or Lord Chancellor, who is actually head of the Justiciary. The people seem to be intelligent and capable of great advances in civilisation; but, unfortunately, at present the Arabs from the east coast are much more popular than Europeans, and, as it is in the interest of these Arabs to perpetuate the slave trade, their influence is necessarily for evil. Mr. Ashe explains in his prologue that his book has been written under great pressure of business. We hope that it will not be long before either he or one of his brave comrades finds an opportunity of giving us a fuller account of the country and customs of this little-known people.