

THE GATHERER.

Trees in Towns.

A green tree in a large town is a cheap source of pleasure to every passer-by. It has been generally supposed that few trees will condescend to grow in towns. A contemporary, however, is of opinion that if a series of experiments were set on foot the number would be found pretty considerable. As it is, we have many varieties in London, and it would be a pleasant occupation for any one at leisure to make out a list of all the different sorts thriving within a radius of three miles or so of the General Post Office. London, indeed, is well off in regard to trees. If by some



magical process all the buildings could be silently evaporated, and the trees left standing, the site of this great city would almost look like the scattered remains of some huge forest.

Where there is a considerable space of ground, as in a park, or even in such plots as the gardens on the Thames Embankment, almost any kind of tree may be planted with safety, and will thrive if properly managed. Deciduous trees are, for the most part, better suited for town than evergreens, and cone-bearing trees are certainly the least suitable of any. The plane is the best of all town trees, and of it smoky London can show many fine examples.

Kitchen-Gardens on Board Ship.

Amongst the many privations of the sea we must reckon the want of fresh meat and vegetables. And this is not merely a question of luxurious living: it is a matter deeply affecting health. To speak only of fresh vegetables, nothing is more certain to induce scurvy, that old foe of mariners, than to live deprived of them for a considerable time. The ravages of this disease were once appalling. It is believed that more seamen used to perish from scurvy than from all other causes combined—sickness, tempest, or battle. Since the laws of health have been better understood things have greatly improved, but the disease still breaks out occasionally—as, for example, in the case of the late Arctic Expedition.

We would here point out that one may contrive to grow fresh vegetables on board ship without much trouble. It is not necessary to make a kitchen-garden

of the quarter-deck: all that is needed is a wet blanket in some part of the ship where there is a moderately warm atmosphere. On the blanket the seeds of mustard and cress should be sown. They will be found to germinate readily; and instances might be named in which a plentiful supply of "green meat" has been obtained in this simple way during many long voyages. The essentials of a delicate salad and an anti-scorbutic are thus provided at the same time. Those interested in the matter may grow mustard and cress on wet flannel even by the fireside. The seed-leaves will be observed to shoot forth in a day or two, sometimes even in a few hours.

Searching for Wealth in Arctic Wilds.

Amidst the frozen wastes of the Arctic regions there are, no doubt, stores enough of mineral wealth to raise half the human race from poverty to riches. If we could only get at them! In the days of Good Queen Bess, the celebrated navigator Frobisher made several expeditions into those inhospitable climes in search of gold. And now we hear of the return of an American expedition, sent out by Philadelphian merchants, in search of mica—a humbler mineral, it is true, but perhaps as profitable. The Americans had proceeded to what is known to whalers as Nialtic Valley, and there they had laid a tramway, built shanties, and conducted mining operations for about six weeks. The Eskimo lent them a helping hand, but only for a short time, as they had to set out on their summer's deer-hunting. The miners worked in quarries about 1,300 feet above the level of the sea. It was impossible to carry the tramway to that height, and the mica was transported the greater part of the distance on the backs of the workmen. Some of the blocks were remarkably large and clear, and about fifteen tons of mica were brought away. The mineral was estimated to be worth from five to twelve dollars a pound. The charms of wealth may thus lure us on nearer and nearer the coveted North Pole. And, after all, we must have material gain for an object as well as the increase of scientific knowledge and the gratification of a pardonable ambition.

Pleasant Evenings for Working Lads.

There are thousands of lads in London and other large towns who have no comfortable homes or suitable places of resort after leaving their employment of an evening. Their work ends, say, at seven o'clock, and from that hour till bed-time they are their own masters. What are they to do? Some loiter listlessly at street-corners, and many more make their way into music-halls, low-class theatres, and bad company. What good instruction they may have received is soon forgotten, and they end perhaps in

giving way to some sudden temptation, and being ruined for life.

Hitherto these lads have been quite neglected, so far as the providing of rational and innocent amusement for them after working hours is concerned, for they are too young for existing institutions and libraries. Now, however, a movement has been set on foot to establish throughout London a number of Working Lads' Institutes, in which amusement and education will be combined, and where lads of thirteen and upwards on leaving work may spend a profitable hour or two, and be kept from mischief and temptation. Pure and useful literature will be provided in place of the trashy and immoral reading which is ruining so many. It is intended to have the institutes open every evening, and, if possible, also during the day. "In connection with each of them there will be a good reading-room, library, classes for music and singing, reading, writing, and such-like subjects; Bible and temperance meetings, and a gymnasium. A savings bank, sick fund, and clothing club may also be added. Refreshments will be served at low prices. A register of situations wanted will be kept, and may be of great service to members, as well as useful to employers." Such a movement as this has our best wishes. We sincerely trust that Working Lads' Institutes on this plan will soon exist, not only all over London, but in every city and town in the United Kingdom.

Double Acrostic.

So coy, so bright, so beauteous, and so fair,
Like the sweet rosebud, hiding charms most rare,
Till Cupid shoots—transfixèd by his dart,
She yields her charms to some true loving heart.

I.

Woe to the bark which hitherward is borne,
Her chance of safety is at best forlorn.

II.

The Arab boys, who once the streets did roam,
On me find shelter, teaching, and a home.

III.

The king who sits upon his throne,
The greatest wretch to prison taken,
Would equally be forced to own
They once were *this*, or I'm mistaken.

IV.

Strange as it seems, if parted from my jamb,
People will say I am not what I am.

v.

Mysterious voices answered to my call
On every side: one sound produced them all.

VI.

A famous porcelain tower stood in this town,
An object once of interest and renown.

F. G. C.

Answer to "A Hidden Line" on p. 63.

"Queen rose of the rosebud garden of girls."
Tennyson, "Maud."

Making Paper from Bamboo Stems.

Few people have any idea of the number of articles from which paper can be made. We may find material for it in the housewife's rag-bag, in grass waving on the hillside, in husks of grain, in flax, gutta-percha, fur, hair, leather, moss, leaves, nettles, turf, sawdust, and countless things besides. We may even see possible books in the thistle-down dancing in the breeze, and the seaweeds that strew the sandy shore. Of all materials for paper-making, that which has received most attention of late years is Esparto grass, which has come to be largely used in England, mainly through the exertions of Mr. Thomas Routledge. It appears that the supply of Esparto from Spain is now decreasing, and although alfa is imported in large quantities from Algeria and the whole of the North African coast, the supply is not equal to the demand. Mr. Routledge therefore now advocates the employment of bamboo in paper-making. He proposes to establish extensive plantations, and to erect a factory near these, to which the bamboo-stems may be brought and subjected to such treatment as will fit them for use. This would be a new industry for India, and it was announced some time since that the Indian Government, thinking the project a hopeful one, had given instructions for the establishment of experimental plantations.

Gigantic Poultry.

If any one is in want of an occupation, let him try ostrich-farming. This novel industry has of late made considerable progress in our colonial possessions at the Cape, and has been found exceedingly profitable. Little capital is required, the risk is trifling, and the trouble is insignificant compared with that attending many other rural occupations. One engaged in it says: "I hold that from 300 to 400 per cent. of profit can be safely calculated on upon the outlay both for birds and other expenses, such as enclosures, plucking-stalls, 'kraals,' and land-rent."

The great object in breeding the ostrich is to obtain a supply of feathers. It is true that the bird can be eaten, and that its eggs are thirty times as big as those of the domestic fowl, and will keep fresh for two or three months, but the feathers are the principal thing. They form an important article of commerce. In 1874 we paid for ornamental feathers, chiefly those of the ostrich, nearly £603,000. About one-fourth of these were re-exported, but feathers were retained by this country to the value of close on half a million, a pretty considerable sum to pay annually for such articles. Prices of feathers are much higher now than they used to be. Ostrich-feathers which were worth only about £1 twenty years ago, now sell sometimes for as much as £20 and £30. This change is due to their extended use for *parures*, trimming, and hats, as well as to the scarcity arising from the persevering chase of the wild bird, which has driven it far into the desert regions.

The best ostrich-feathers end in seeing something of high life; they are much used for Court plumes. For the last two centuries it has been the rigid law of fashion that ladies going to Court must appear with

ostrich-feathers in their heads, artificially curled and arranged.

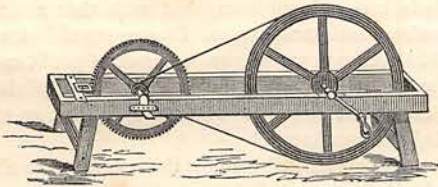
Ostrich-feathers dyed black are also required for making funeral plumes. Few people would imagine that a full set of plumes for a funeral is worth from £200 to £300.

When we consider that feathers for ladies' hats and dress trimmings, as well as Court plumes, are all proportionally dear, it is not difficult to understand how ostrich-farming may be made a remunerative undertaking. The only danger is that, like many another good thing, it may be overdone.

How to Measure Sound.

The pitch of a note depends on the vibrations of the body producing it. If the string of a violin yields the same note as a tuning-fork, it is because both vibrate with the same rapidity; if the tuning-fork gives the same sound as the pipe of an organ, or the tongue of a concertina, it is for no other reason than that the vibrations of the fork are excited in precisely the same time as the vibrations of the column of air in the one case and those of the metallic tongue in the other.

Several ways have been devised for determining the actual number of vibrations in musical notes; and we can tell with surprising accuracy the number of sound-waves that any note sends forth in a given time. Indeed, by one delicate contrivance we might even determine from the hum of a little insect the number of times it flaps its wings in a second. A very simple sound-measuring apparatus, which any one with moderate mechanical abilities might construct for himself, is that shown in the engraving. It consists of two

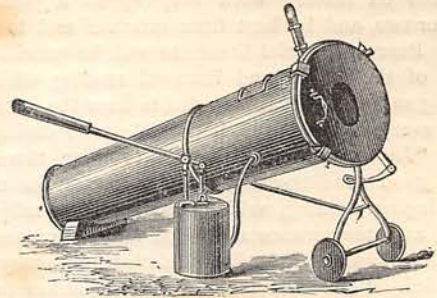


wheels fixed in a wooden frame, and in the rim of the smaller wheel there are a certain number of teeth. They are so adjusted that the smaller wheel is made to revolve with great rapidity, its teeth hitting upon a card placed near it. The number of revolutions is indicated by a counter attached to its axis.

The machine is used thus:—Suppose we wish to know the number of vibrations of a tuning-fork, the fork is first of all sounded, and placed on a sounding-box; then the revolution of the wheel is gradually increased, till the note emitted by the card corresponds with that of the fork. The two sounds should be kept in unison for a certain time—say ten seconds. Now, if there are a hundred teeth in the smaller wheel, and if during the ten seconds the counter registers thirty revolutions, we have 3,000 as the number of shocks or vibrations given to the card in that time. Thus, 3,000 divided by ten (the number of seconds) will be the number of vibrations the fork performs per second.

Breathing by Machinery.

A French physician has invented a method of producing artificial breathing, which may prove of great use in cases of drowning. The apparatus employed goes under the name of the "spirophore." It consists of a zinc or iron cylinder large enough to admit the body of an adult. One end is permanently closed, and a diaphragm fits into the other, round the patient's neck, in such a way as to prevent the ingress of air.



A small but powerful bellows communicates with the case by a wide tube, and is worked by a lever, the descent of which causes the air to be drawn off from the case, while the return-motion restores the air. Through a pane of glass in the cylinder the chest of the patient can be seen.

When some unfortunate half-lifeless man is placed in the cylinder, the diaphragm is fitted, and the bellows "aspires" the air; this makes a vacuum about the body, and the external air penetrates into the chest, the walls of which rise as in life. They return to their former position when the air is restored to the cylinder, and these respiratory movements may be repeated fifteen to eighteen times a minute. By means of the pane of glass, and a rod moving in a vertical tube, all the movements are easily recorded. From experiments made by the inventor, it appears that from twelve to fourteen litres of air can thus be introduced every minute into the respiratory organs. The spirophore seems just such an apparatus as should be in the hands of the Royal Humane Society, and of all persons engaged in restoring the drowned, or those in danger of death from asphyxia.

Instantaneous Fire-Lighters.

One of the latest proposals has been to light fires by electricity, so that the fires in a house being laid ready over-night, no one would need to stir out of bed till every room was comfortably heated. Even with electricity, however, fire-lighters of some sort would be indispensable, and we observe that a method has recently been invented for manufacturing these out of a cheap and easily-procured material. Turf or peat is taken, and cut into cakes about three inches long by three inches broad and about one inch in thickness. It is then dipped, first into mineral or vegetable oil, and then into pitch, tar, or resin; and the result, we may be sure, is a highly inflammable fire-lighter.