

Scientific.

The Cometary Worlds.

The wonderful characteristics which mark the flight of comets through space; the suddenness with which they blaze forth; their exceeding velocity, and their terrific appearance; their eccentric motions, sweeping towards the sun, from all regions and in all directions, have rendered these bodies objects of terror in all ages of the world. While the planets pursue an undeviating course round the sun, in orbits nearly circular, and almost coincident with the plane of the earth's orbit, all revolving harmoniously in the same direction, the comets perform their revolutions with every possible eccentricity, confined to no particular plane, and moving indifferently in accordance with, or opposed to, the general motion of the planets. They come up from below the plane of the ecliptic, or plunge downwards towards the sun from above; sweep swiftly round this their great centre, and with incredible velocity wing their flight far into the fathomless regions of space, in some cases never again to reappear to human vision.

In the early ages of the world, superstition regarded these wandering fiery worlds with awe, and looked upon them as omens of pestilence and war; and indeed, even in modern times, no eye can look upon the fiery train spread out for millions of miles athwart the sky, and watch the eccentric motions of these anomalous objects without a feeling of dread. The movements of the planets inspire confidence. They are ever visible, and true to their appointed times; while the comet, erratic in its course, bursts suddenly and unannounced upon the sight, and no science can predict in the outset its certain track—whether it may plunge into the sun, or dash against one of the planetary systems, or even come into collision with our own earth, is equally uncertain, until after a sufficient number of observations shall have been made to render the computation of the elements of its orbit possible.

Previous to the discovery of the law of universal gravitation, comets were looked upon as anomalous bodies, of whose motions it was quite impossible to take any account. By some philosophers they were regarded as meteors kindled into a blaze in the earth's atmosphere, and when once extinguished they were lost forever. Others looked upon them as permanent bodies, revolving in orbits far above the moon, and reappearing at the end of long, but certain intervals. When, however, it was discovered that under the influence of gravitation, any revolving worlds might describe either of the four curves, the circle, ellipse, parabola, or hyperbola, it at once became manifest that the eccentric movements of the comets might be perfectly represented by giving to them orbits of the parabolic or hyperbolic form, the sun being located in the focus of the curve. According to this theory the comet would become visible in its approach to its perihelion, or nearest distance from the sun—would here blaze with uncommon splendor, and in its recess to the remote parts of the orbit, would gradually fade from the sight, relaxing its speed, and performing a vast portion of its vast curve far beyond the reach of human vision.—[Prof. Mitchell.]

Water, a Miracle of Creation.

Is there any one who can elevate his mind above that indolence of observation and dullness of feeling, which result from the daily impressions of familiar objects? There are such; for of them is he to whom Nature has granted the power of seeing her as she deserves to be seen, and of teaching others how she ought to be contemplated. It is the poet of Nature who should write the history of water. Familiar, even to neglect, this is a wonderful substance, and we forget to admire;—beautiful, and we do not note its beauty. Transparent and colourless, it is the emblem of purity; in its mobility, it is imbued with the spirit of life; a self-acting agent; a very well in the unceasing river, the dancing brook, the furious torrent, and the restless ocean: speaking with its own voice in the tinkling of the dropping cavern, the murmuring of the rill, the rush of the cascade, and the roar of the sea-wave; and even in the placid lake throwing its own spirit of vitality over the immovable objects around. And, if its motion is the life of the landscape, it is, at rest, the point of contrast and repose for the turbulent multiplicity of the surrounding objects; a tempering shadow in reflecting the bright picture, and, as the mirror of the sky, a light amid darkness;

while it is the color to enhance what it contrasts, whether in its splendour or its shade.

Its singular oppositions of character are not less striking. Yielding to every impulse, unresisting, even to light, it becomes the irresistible force, before which the ocean promontory crumbles to dust, and the rocky mountain is levelled with the plain below;—a mechanical power, whose energy is without bounds. Of an apparently, absolute neutrality, without taste, without smell, a powerless nothingness, that deceptive innocence is the solvent of everything, reducing the thousand solids of the earth to its own form. Again, existing at one instant, in the next it is gone, as if it were annihilated: to him who knows not its nature, it has ceased to be. It is a lake, and in a short time it is nothing; again it is that lake, and it is a solid rock. It is crystal at one instant, and in the next it is invisible; while the agent of its invisibility transports it beyond the earth: that rock is air! Thus sailing the heavens, it descends again unchanged, again to renew the same ceaseless round: forever roaming between the earth and the vacant regions of space; wandering about the earth below in the performance of its endless duties, and though appearing at rest, resting nowhere. This and more is water: powerful in its weakness, and powerful in its strength; an union of feebleness and force, or incessant activity and apparent tranquillity, of nullity and ubiquity, of insignificance and power, a miracle of creation.—[M. Culloch.]

The Cocoa-nut Palm Tree.

When the Cingalese villager has felled one of these trees after it has ceased bearing (say in its seventieth year,) with its trunk he builds his hut and his bullock stall, which he thatches with its leaves—His bolts and bars are slips of the bark, by which he also suspends the small shell which holds his stock of home-made utensils and vessels. He fences his little plot of chilies, tobacco, and fine grain, with the leaf stalks. The infant is swung to sleep in a rude net of deer-string, made from the husk of the fruit; its meal of rice and scraped cocoa-nut is boiled over a fire of cocoa-nut shells and husks, and is eaten off a dish formed of the plaited green leaves of the tree, with a spoon cut of the nut-shell.—When he goes a fishing by torch-light, his net is of cocoa-nut fibre; the torch or *chule* is a bundle of dried cocoa-nut leaves and flower stalks; the little canoe is a trunk of the cocoa palm-tree, hollowed by his own hands. He carries home his net and his string of fish on a yoke or *pingo*, formed of a cocoa-nut stalk. When he is thirsty, he drinks of the fresh juice of the young nut; when he is hungry, he eats its soft kernel.

If he has a mind to be merry, he sips a glass of arrack, distilled from the fermented juice of the palm, and dances to the music of rude cocoa-nut castanets. If he be weary, he quaffs toddy of the unfermented juice, and flavors his curry with vinegar made from the toddy. Should he be sick, his body will be rubbed with cocoa-nut oil; he sweetens his coffee with *jiggery*, or cocoa-nut sugar, and softens it with cocoa-nut milk; it is sipped by the light of a lamp, constructed from a cocoa-nut shell, and fed by cocoa-nut oil. His doors, his windows, his shelves, his chairs, the watergutter under the eaves, all are made from the wood of the tree. His spoons, his forks, his basins, his mugs, his salt-cellars, his jars, his child's money-box, are all constructed from the shell of the nut. Over his couch when born, and over his grave when buried, a bunch of cocoa-nut blossoms is hung to charm away evil spirits. [Dickens' Household Words.]

Cheap and Durable Wash.

The following is a most excellent, cheap, and durable wash for wooden fences and buildings. It owes its durability chiefly to the white vitriol, which hardens and fixes the wash:

Take a barrel and slack one bushel of freshly burned lime in it, by hovering the lime with boiled water.

After it is slacked, add cold water enough to bring it to the consistency of good white wash. Then dissolve in water, and add one pound of white vitriol (sulphate of zinc) and one quart of fine salt.

To give this wash a cream colour, add one-half pound of yellow ochre (in powder). To give it a fawn colour, add a pound of yellow ochre, and one-fourth of a pound of Indian red.

To make a handsome gray stone colour, add one-half a pound of French blue, and one-

fourth pound of Indian red; a drab will be made by adding one-half a pound of burnt sienna, and one-fourth pound Venetian red.

For brick or stone, instead of one bushel of lime, use half a bushel of lime, and half a bushel of hydraulic cement.—*Downing's Horticulturist.*

The Farm.

Breaking Steers.

The winter season is the time when farmers should teach their steers to draw together in the yoke. Many farmers are careless in this matter, and leave it to untrained boys to train unruly steers. We claim no superior wisdom in this matter, but we must remind farmers occasionally "of what themselves do know."

They and we have seen people attempt to break steers, but in doing it they first break their noses and backs. We have often insisted that much whipping is not needed when the right course is pursued. Kindness, gentleness, and good humour are appreciated by them as well as by the human race, and they can be overcome by kindness. Let us go into detail.

It is not long since we saw a couple of young men attempting to make a pair of steers move forward in their new yoke. They were past two years old and had never been even halter-broken or confined in any way. They were yoked in a cowyard and soon invited to move, but neither understood what was said to them. At length a stick was used, and one of the steers thought it was time to be free (he did not even understand the slave catching law,) he sprang forward, but his mate had not then made up his mind to move, and he kept his ground.

After much whipping and beating, the idea of making them advance or run back while yoked together was given up, and the steers stood their ground much better than Santa Anna's troops did when General Taylor was whipping. The steers were unyoked and the breaking was deferred to another day.

On that other day we requested to have the steers yoked again. We filled our pockets full of apples, for the steers were too green for green or ripe corn. As soon as the off steer found we had something for him to catch hold of instead of himself being caught, he came forward, ate the apple, then another, and a third. Now he stood to have the yoke put on him, and we turned our attention to the nigh one. He too came directly under the yoke that was held up for him by one of the young men, following us with a good apple that was held out to him, and he ate two or three while the bow was made fast.

Now the motion was to make the steers move. We charged the young men not to strike a blow. We took more apples from our pockets and in a very few minutes both steers followed us around the yard and in any direction where we chose to go. They were quite willing to move forward together, and had not the least inclination to run away. When they had become used to moving together in the yoke they could be driven by means of a birch stick applied to their tails. We could haw them and gee them about without the least difficulty, and in two hours time we could drive where we pleased. They would haw about or come to by holding out a hand to them as in offering an apple.

The truth is that when steers are first yoked they know nothing of what is wanted, and all the beating that can be inflicted will not make them move. We have often seen steers afflicted with a bad habit of geeing or running off from the driver, and we have too often seen the driver run after them and whip them for running off. This is equal to whipping a horse for not letting you catch him in the pasture.

An old man once told us he never ran after a pair of steers. He could always bring them back by showing an ear of corn. Young men, will you remember this and not chase your steers to whip them.

Steers that are broken without whipping stand more erect in the yoke than others. They have no slavish fears of having their noses beaten in as steers have that have been clubbed by ill-tempered drivers and taught to crouch and stick their heads to the earth to hide them from ungoverned wrath.

The steers we have been speaking of now hold up their heads as high in the yoke as out of it. They have no craven look or sulky nod to show resentment for their loss of freedom, but seem to be willing to exchange that for a tit bit offered in kindness and received with a fair understanding of the designs of the master.

WINTER MANAGEMENT OF COWS.—Mr Lincoln gives the following in relation to the management of his cows in winter:—

"They are stabled, are fed at regular hours, have a good bedding at night, are cleaned every morning with the *curry-comb* instead of the card, are kept stabled except for two or three hours in the middle of the day, if fair weather—if stormy they are not, except a sufficient time, morning, noon, and evening, to allow them to drink. Milch cows should be kept warm and dry. The hay given to the cows is of ordinary quality, and each cow is fed with from one to two pecks of carrots per day. The butter made in winter, by the aid of carrots, is fully equal in color and sweetness to that made in June. The milking and care of my stock is attended to by myself, unless prevented by sickness or absence: milking throughout the year uniformly at six o'clock in the morning and six in the evening."

Wintering Calves.

Young calves should never be confined in yards with yearlings or cattle older than themselves. As they are inferior in strength, they are consequently often injured by the pushing and crowding of their more sturdy companions, and often seriously maimed, or destroyed outright. If you have a flock of sheep, turn your young calves in with them. They will there partake of their food with the sheep without quarrelling, and at night will be kept more comfortable than if tied up and put in a pen by themselves.

In many diseases to which cattle are subject, a tea of sheep-dung is the surest remedy that can be given. When running with sheep, the calves generally consume with avidity the straw and litter on which these animals repose, and which, to a certain extent, becomes impregnated with the peculiar virtues of the "specific," and are thereby prevented from falling sick. Those who have adopted this practice, speak of it in terms of the highest approbation. Conveniences for watering, feeding, &c., should be arranged, and the animals provided with salt as often as necessity requires.—*German town Telegraph.*

Management of Animals.

In breaking or managing a horse, however intractable or stubborn his temper may be, preserve your own. Almost every fault of the brute arises from ignorance. Be patient with him, teach and coax him, and success in time is certain. There are tricks, however which are the results of confirmed habit or viciousness, and these sometimes require a different treatment. A horse accustomed to starting and running away, may be effectually cured by putting him to the top of his speed on such occasions, and running him till pretty thoroughly exhausted.

A horse that had a trick of pulling at his bridle and breaking it, was at least reduced to better habits, by tying him tightly to a stake driven on the bank of a deep stream. With his tail pointed to the water, he commenced pulling at the halter, which suddenly parted, over the bank he tumbled, and after a somersault or two, and floundering a while in the water, he was satisfied to remain at his post in future, and break no more bridles.

A ram has been cured of butting at every body and everything, by placing an unresisting effigy in a similar position; when the sudden assault, on a wintry day, resulted in tumbling his ramship into a cold bath, which his improved manners took care to avoid in future.

A sheep-killing dog has been made too much ashamed ever again to look a sheep in the face, by tying his hind legs to a stout ram on the brow of a hill, while the flock were quietly feeding at the bottom. On being set free and somewhat startled at setting out, in his haste to rejoin his friends, he tumbled and thumped master Tray so sadly over the stones and gullies, that he was quite satisfied to confine himself to cooked mutton thereafter.

Man's reason was given him to control "the beasts of the field and the birds of the air," by other means than brute force. If he will bring this into play, he will have no difficulty in meeting and overcoming every emergency of perverse instinct or bad habit in the dumb things by his superior cunning.—*Amer. Agriculturist.*

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