

### Ringling the Changes.

BY THOMAS HOOD.

'A Sea Horse is a Sea Horse

When you see him in the sea;  
But when you see him in the bay  
A Bay Horse then is he.'

'Of course, a race-course isn't coarse,  
A fine is far from fine;  
It is a saddening sight to see  
A noble pine-tree pine.'

'If miners are all minors, then  
Their guardians get their gains.  
All glaziers extra pains should take  
To put in extra panes.'

'A bat about a farmer's room  
Not long ago I knew  
To fly. He caught a fly, and then  
Flew up the chimney-flue.'

'But such a scene was never seen—  
I am quite sure of that—  
As when with sticks all hands essayed  
To hit the bat a bat.'

'How do you do?' said Sall to John,  
'So-so,' replied he.  
'How do you do?' said John to Sall,  
'Sometimes sew-sew,' said she.'

'A kitchen maid is often made  
To burn her face, or broil it;  
A lady will do little else  
Than toil-it at her toilet.'

'Tis punishment for me to pun;  
'Tis trifling void of worth;  
So let it pass unnoticed  
Like dew that's due to earth.'

### A Way to Remember.

Most self-educated men, who for the most part have to win their bread and their information together, feel that the pressing and material business of life has a tendency to interfere with the memory of the scientific facts or of the philosophical truths which, in the intervals of leisure, they have been at pains to acquire. Now, there are many every-day familiar things, which, by any one sincerely in earnest, may be made powerful helps to the memory, and to habits of reflection, through the association of ideas. It may be useful to illustrate this position by a few examples.

There are few readers who have traveled by any sort of carriage, who could have failed to remark the appearances of motion impressed upon the landscape. These are due, not to the landscape, but to the carriage. Such simple phenomena are easy of association with the motion of the earth and the immobility of the sun; they read many lessons to us on the difference between real and apparent motion.

Among the highest truth in nature, is the now confessed universality of motion. The fixed stars are no longer fixed in the ordinary sense, and the belief of thousands of years that they were absolutely fixed, is now proved to have arisen from an illusion of the senses. All are now conceded to be moving around each other with marvelous velocity; though, from the distance, the motion appears to us to be remarkably slow.

The sun himself has his circuit of travel, measured by ages. In the words of a modern astronomer, 'mutation and change are every where found; all is in motion; orbits expanding or contracting, their planes, rocking up or down, their perihelia and nodes sweeping in opposite directions round the sun.' It is well that we are likewise told, that 'the limits of all these changes are fixed; that these limits can never be passed, and that at the end of a vast period, amounting to many millions of years, the entire range of fluctuation will have been accomplished, the entire system, planets, orbits, inclinations, eccentricities, perihelia, and nodes, will have regained their original values and places, and the great bell of eternity will have then sounded One!'

Now among many things which we have not mentioned, but which are nevertheless involved in the above statement, there are not a few that are extremely difficult to be remembered, but which it would be serviceable to retain in memory by the aid of familiar associations. Recurring again to the phenomena of travel; (for earth is to man none other than a magnificent chariot wherein he rides around that great central luminary, the sun, in the midst of planetary systems without end;) we may again refer to the apparent motion of the objects through which the passenger on the railway progresses.

While passing in a direct line through a forest of trees, those trees towards which he is moving will appear to open out or separate from each other, while those left behind will appear to close up.—Now this same opening-out, and this same closing-up, are actually the criteria employed to determine the astronomer touching the direction in which man on this earth is traveling through the starry forest in the skies.

Borne along by the movement of the sun, the astronomer accordingly seeks a point in the heavens where the stars appear to be increasing their mutual distances. Finding this point, he next looks behind him in the opposite direction, and there perceiving the stars to close up on each other, he concludes that he has found the direction in which he is moving.

In this manner it was, in fact, that Herschel determined that the solar system is traveling through space towards a point in the constellation Hercules. Now, many minds acting on this simple association, like the actor who receives the cue of a word or two from the prompter and then remembers his whole part, may, from the mere force of such a system, remember the whole of the discoveries of Argelander and Maedler.

The sun, with its planets, will be seen sweeping towards the north pole of the heavens—in fact, towards a star in the constellation Hercules—with a velocity which causes it to pass over a distance

equal to thirty-three millions three hundred and fifty thousand miles every year.

The star, Aleyone, will be recalled as the principal star in the group of the Pleiades, now supposed to occupy the centre of gravity, and to be at present the sun about which the universe of stars composing our astral system are all revolving; the light from Aleyone requiring a period of five hundred and thirty-seven years to traverse the distance of the sun, from the central orb about which he performs his mighty revolutions; and the enormous term of eighteen million two hundred thousand years being required to be accomplished, if we may rely on the angular motion of the sun and system, as already determined before the solar orb, with all its planets, satellites and comets will have completed one revolution around its grand centre.

Still keeping to the incidents of travel, and the phenomenon of forest-trees. Who has not observed, while journeying along a railway, how the trees of a forest apparently whirl around each other—an appearance produced by the rapid speed of the carriage? This incident, familiar as it is, many serve to raise habitually in the mind the notion of the parallax of the fixed stars.

Parallax is the apparent change in the place of an object, occasioned by the real change in the place of the spectator. Since the parallactic motion of the forest trees becomes less and less perceptible as the velocity of the travelling beholder diminishes, or as the distance of the seemingly moving object becomes greater, it is evident that to measure the distance of the fixed stars is equivalent to determining the amount of the parallactic change in their relative positions, occasioned by the actual change in the relative positions from which they may be viewed by a spectator on the earth's surface.

The spectator will, on the prompting of the remarkable suggestion, probably remember that when the orbital motion of the earth was first propounded by Copernicus, and it was asserted to revolve in an ellipse of nearly six hundred million miles in circumference, and with a motion so swift that it passed over no less than sixty-eight thousand miles in every hour of time, the opponents of the great philosopher exclaimed, that this doctrine could not be true; 'for,' said they, 'if we are sweeping around the sun in this vast orbit, and with this amazing velocity, then ought the fixed stars to whirl round each other, as do the forest trees to the traveller flying swiftly by them.'

To the unassisted eye this, which was the case in fact, did not appear; and the Copernicans were without a satisfactory reply. They could only venture a suggestion that, owing perhaps to the enormous distance of the fixed stars, no perceptible change was operated by the revolution of the earth in its orbit; in other words, that the pole of the heavens revolved in a curve of two hundred million miles in diameter, but that such was the distance of the spheres of the fixed stars, that this curve was reduced to an invisible point.

After a contest of three hundred years' duration, the truth uttered by Copernicus, but not sufficiently illustrated, is at length indisputably established.

Sometimes things of a grosser sort will serve to make those of a finer quality not only more appreciable, but more intelligible. Questions in regard to the subtle essence, Light, are difficult because of their fineness; but it has been found possible to make them clear by resembling the subjects they regard to tangible objects, such as gun-boats, and rifle-balls, and gun-barrels. One of the last named articles is supposed to be placed on a moving boat, and it is proposed so to direct a rifle on shore as to fire a ball down the said barrel.

Now, let the two rifles be on the same exact level, and the axes of the barrels be made precisely to coincide—would the ball from the one pass down the other, in case the fixed one were fired at the exact instant the muzzles came precisely opposite to each other? The unistructured would be apt to answer yes; not because the scientific reply confidently, No.

It is necessary that the fixed rifle should be fixed before the moving one comes opposite, and the rifleman must make an allowance for the time the ball requires to move from the one gun to the other, and also for the velocity with which the moving piece is descending the stream. In order that the ball from the shore may be caused to enter the muzzle of the moving rifle, this computation must be accurately made. But further conditions have also to be considered.

For instance, it must be recollected that while the ball is progressing down the barrel, the barrel itself is progressing down the tide, and that, in order to avoid the pressure of the ball against the upper side of the barrel, the latter must be fixed in an inclined position, and that the bottom of the barrel must be as far up the stream as it will descend by the boat's motion during the progress of the ball down the barrel; in fine, that the direction in which the barrel of the rifle which should receive the ball must be placed, is determined both by the velocity of the ball, and the velocity of the boat which bears the rifle.

But what has this very material parable to do with the theory and properties of light? First of all, we liken the particles of light that are shot from the fixed stars to the balls that are shot from the fixed rifle. The gun-barrel on the moving boat represents the tube of the star-gazer, and the boat represents the earth which bears him while itself sweeping around in its orbit.

Down the axis of that tube the particles of light, like the aforesaid rifle-balls, must pass, in order to reach the eye of the observer. As the velocity of the earth's motion has been ascertained, and as the amount by which the telescope must be inclined, to cause the light to enter, has been determined, the velocity of the light itself becomes known from these two data; and thus the previously determined value of this incredible velocity is satisfactorily confirmed.

For the rest, the reality of the earth's motion is absolutely necessary, to render the phenomena

at all explicable. Such an illustration may serve to explain to the grossest understanding how it is that, owing to the progressive motion of light, and the revolution of the earth in its orbit, the celestial bodies cannot occupy in the heavens the places which they appear to fill.

The particles of light from Jupiter take nearly forty minutes in passing from the planet to the observer's eye. Meanwhile, the earth has progressed in its orbit some thirty-seven thousand miles, and the spectator borne along with it must see the planet, not where it actually is, but where in appearance some forty minutes before.

The same effect in kind is produced on the places of the fixed stars, and is called aberration. To bring all this to mind with clearness and precision, it needs only to think of the gun-boat, the rifle-barrel, and the rifle-ball.—[Ex.]

### Turkish Contrast.

Turkey is rich to overflowing; the population meek in all their poverty of indulgence. The loveliness of every landscape is broken by the most hideous public misery. The climate is fine, for the air is fresh and soft; the temperature generally moderate. It is bad because it is both cold and wet, foggy and rainy.

The Turk proverbially loves his ease; yet he lives in the most inconvenient manner. He smokes chibouque or nargilly on sofas without backs; he uses his knees for a writing desk, and the floor for a dinner table. He is fond of riding and has no roads. He is fond of visiting his friends in state, but has no carriage; his streets are neither named nor numbered. Turks are both clean and dirty. They are always dabbling with water, but they eat with their hands; they heap intolerable garbage before their doors, leave dogs to do the office of scavengers, and allow dead carcasses to putrefy beneath the windows of their palaces. They are both quick and slow in business, for they have few formalities; yet they have always got a scope of opposing interests in everything. They neglect the most important affairs in endeavoring to satisfy everybody on some occasions, and jump at conclusions with a simplicity and good faith almost affecting, upon others.

The Turk's wives are so muffled up that they cannot see where they are walking; and they roll about like barrels, from the length of their dresses and the largeness of their shoes. He veils and imprisons, yet he allows them to go where they please unaccompanied. Turks are never seen in public with their wives. On the one hand they appear to consider ladies as Nature's choicest handiwork; for they can imagine no present more grateful to the Sultan on the great festival of the Biran, than a young maiden. On the other hand, they deny women, any place or influence in society; and while they refuse them a soul, insist that they shall be transported bodily into paradise. In Turkey a girl seldom brings a portion to her husband; but the husband pays a sum of money to her parents. Turkish women are lively, gossiping restless; the men are calm, taciturn, and apathetic. A Turk considers it shameful to look at a lady passing him. He never suffers the name of wife to pass his lips, and would consider it an insult if you asked after her health. Yet he is a polygamist, and has children by his slaves.

The Ottoman is compassionate and cruel. He will leave a legacy to a horse, and support an army of beggars; but he would roast a Christian with great zest, and bastinado his slaves without a qualm. He is at once splendid and mean. Ostentatious in servants, horses, pipe-sticks and houses; but his servants and horses are worthless, his houses are kept in such bad repair that the rain often comes into his drawing-room, and pigeons build in the hall of audience of his sultans. He always reminds strangers of the Hungarian nobleman, who had but one spur.—Nothing about him is complete. A saddle of cloth of gold will be girt around his steed with an old rope, and, while the mouth-piece of his pipe may be worth five hundred pounds, the bowl is not worth a half-penny. He is a democrat, though he lives under government nominally despotic. He is a democrat because he can hardly understand any real difference of ranks in a country where a whim of the prince has often made a minister of a coffee-boy or a water-carrier. Most governments are supposed to examine affairs with some view to their settlement; at the Porte they are usually investigated with a view of avoiding it. In other countries promotion is slow, and business is managed comparatively quickly.—In Turkey business is conducted slowly and promotion granted quickly. Elsewhere thanks are usually returned for a present; in Turkey it is customary to thank the receiver. A guest invited to dinner is also thanked for coming.

In Turkey superiors salute inferiors; elsewhere, the reverse is the fashion. In Europe we uncover our heads as a mark of respect; in Turkey people take off their shoes to show deference. A Turk is brief of speech, and seldom exaggerates; but he is amused by interminable stories, and the most improbable freaks of the imagination. He suffers evils without complaint; because he says they are written on the book of fate, and he considers them as part of the scheme of Divine Providence. He has a great contempt for ancestry, and concedes to the descendant of Mahomet no other advantage in life than a green turban. He has even a stinging proverb always ready for those who claim merit on account of their forefathers; and tells them that they are like dogs who prowl about tombs and live upon old bones.

A real Turk cares little for politics; most of the persons mixed up in public affairs in his country being Greeks or of Greek descent. He is brave and sensitive; but he never dreams of a duel, nor have the French been able to inoculate him with their entertaining ideas on this subject. I can recall no single instance of a Turk who has committed suicide. He will tell you, indeed, that the hour of his death is written, and

that he can neither hasten nor retard it. Persons who are fond of theories usually recoil with instinctive prudence from all practical tests; and it never occurs to a theoretical Turk to try the soundness of his doctrine with a razor or a pocket pistol. The conduct of the Turks in this respect may be therefore held up as a model of polite imitation. The police of Constantinople have much more to do with the Christians, of Pera and Galata, than with the Mussulmen on the whole adjoining city. Murder or robbery is rare in a Turkish quarter; elsewhere it is of a daily occurrence. Indeed, the Turks are a great deal better than the institutions under which they have hitherto lived; and they are accustomed to say, with no less truth than good humor, 'We like our government best when it neglects us most.'

I once asked a Turkish gentleman with whom I had the good fortune to be on terms of great intimacy, whether he did not admit that Mahomedanism was not in itself opposed to what the Western Franks are pleased to call progress.—His reply was just and spirited. He referred me at once to the splendid story of the Spanish Arabs, and enlarged with much dignity and good sense on the notorious fact that they were for some centuries perhaps the most learned and enlightened people in the world. The Egyptians and Syrians also, he added, not to mention the Persians, had at several periods of their history made notable advancement in science; but their government had been unfavorable, and they had necessarily retrograded. A Turk can hardly speak long without saying something quaint and sententious; so that I was not surprised when my friend, looking demurely at me, concluded thus: 'Since, also, the Christians are often avaricious, selfish, intemperate and unjust—qualities which, I am informed, are much condemned by your Sacred Writings—do you not think it possible that a Mahomedan of our age might take example from them, and break through those precepts of the Koran which have been misinterpreted to counsel us an eternity of ignorance?'

I bowed my head at the ingenious reproof and sought refuge in the cloud of smoke which our pipes charitably emitted.—[Selected.]

'NATURAL WAISTS, OR NO WIVES.'—Years ago we read this line somewhere and have never forgotten it, and better know the meaning of it now than we did then. 'Tis a wonder to us that any sensible man should marry a woman whose waist looks as if some of Nature's apprentices built it, and, making blunder, put all the ribs on bottom upward. We could never see much beauty in the black-wasp style of waist; but then we do not make our taste a standard for others. Some women dress as if they never dreamed that they possessed a pair of lungs, which needed room for expansion, and that a full and free circulation of the pure air of heaven through them, was essential to pure blood and good health.

We laugh at the Chinese for pinching the feet of their females, and thus making them genteel cripples, while we, who claim to be their superior in knowledge and progress, pinch the vital parts of our children and youth, and thus raise up a generation of crooked-spined, dyspeptic, and, in many instances, half idiotic invalids, whose iniquities shall be visited upon the fourth and fifth generations, mentally as well physically. We do not consider that crippled feet are so likely to become hereditary as crippled lungs. Hence our folly and wickedness is great r than theirs.

'Tis astonishing that sensible women should become so deluded by this monstrous fashion, so duped by it, as to commit suicide by inches!—Stays are again in fashion, and fashionable misses will 'all fall to pieces without them! Well then let them 'burst up,' we want no such sham material for mothers of coming generations. Their loss would be a great gain in a physiological point of view.

If we have any women in the country made 'upon honor'—women who have moral courage enough to appropriate to their own lungs as much of the free air of heaven as they need—give us such women for wives. Young men had better lead to the hymeneal altar a living, breathing bride, clad in an Indian blanket, than one of these modern, puffing, fainting, wasping ladies, in a straight jacket.—[Topsy, in Life Illustrated.]

MEDICAL USE OF SALT.—In many cases of disordered stomach, a tea spoonful of salt is a certain cure. In the violent internal aching, termed cholera, add a teaspoonful of salt to a pint of cold water; drink it and go to bed; it is one of the speediest remedies known. The same will revive a person who seems almost dead from receiving a heavy fall.

In an apoplectic fit, no time should be lost in pouring down salt and water, if sufficient sensibility remain to allow of swallowing; if not the head must be sponged with cold water until the sense return when salt will completely restore the patient from the lethargy.

In a fit, the feet should be placed in warm water, with mustard added, and the legs briskly rubbed, all bandages removed from the neck, and a cool apartment procured, if possible. In many cases of severe bleeding at the lungs, and when other remedies fail, Dr. Rush found that two teaspoonfuls of salt completely stayed the blood.

In case of a bite from a mad dog, wash the part with a strong brine for an hour, and then bind on some salt, with a rag.

In toothache, warm salt and water held to the part, and removed two or three times, will relieve it in most cases. If the gums be affected wash the mouth with brine. If the teeth be covered with tartar, wash them twice a day with salt and water.

In swelled neck, wash the part with brine, and drink it, also, twice a day, until cured. Salt will expel worms, if used in food in a moderate degree, and aids digestion, but salt meat is injurious, if used much.—[Selected.]

POLL EVIL IN HORSES.—For the benefit of those who have, or may hereafter have horses, that have