

bottoms of the valleys, which are accessible in a degree I never witnessed elsewhere. The time has not yet arrived, the soil being still densely covered with the primeval forest, and manufacturing industry in its infancy, when the full value of this inexhaustible supply of cheap fuel can be appreciated; but the resources which it will one day afford to a region capable, by its agricultural produce alone, of supporting a large population, are truly magnificent. In order to estimate the natural advantages of such a region, we must reflect how three great navigable rivers—the Monongahela, Alleghany, and Ohio—intersect it, and lay open on their banks the level seams of coal. I found at Prownsville a bed ten feet thick of good bituminous coal, commonly called the Pittsburgh seam, breaking out in the river cliffs near the water's edge. Horizontal galleries may be driven everywhere at very slight expense, and so worked as to drain themselves, while the cars, laden with coal and attached to each other, glide down a railway, so as to deliver their burden into barges moored to the river's bank. The same seam is seen on the right bank, and may be followed the whole way to Pittsburgh, fifty miles distant. As it is nearly horizontal, while the river descends it crops out, at a continually increasing but never at an inconvenient height above the Monongahela. Both above and below the seam are others of workable dimensions, and almost every proprietor can open a coal-pit on his own land. The stratification being very regular, they may calculate with precision the depth at which the coal may be won. So great, indeed, are the facilities of procuring this excellent fuel that already it is found profitable to convey it in flat-bottomed boats for the use of steamships at New Orleans, 1100 miles distant, in spite of the dense forests bordering the intermediate river plains, where timber may be obtained at the cost of felling it. One cannot read this account of these coal fields without speculating on the future condition of North America, and associating therewith all that is great, and powerful, and enlightened. Without her mineral resources, Britain never could have been what she now is; and America has started as it were full-grown into life with resources to which those of our island can hardly be compared. The mineral wealth of Britain has already accomplished wonders, and will bring about still more stupendous results; but America, when Britain's last pound of coal shall have been consumed, will only be emerging into meridian glory.

GREAT DISMAL SWAMP.

Among the recent and superficial formations of America, there is none more interesting than those swamps or morasses which occur in the low flat regions of the Carolinas and Florida. The largest of these lies between the towns of Norfolk and Weldon in North Carolina, and is traversed in part by a railway, supported on piles. 'It bears,' says Mr. Lyell, 'the appropriate and very expressive name of the "Great Dismal," and is no less than forty miles in length from north to south, and twenty five miles in its greatest width from east to west the northern half being situated in Virginia, the southern in North Carolina. I observed that the water was obviously in motion in several places, and the morass has somewhat the appearance of a broad inundated river-plain, covered with all kinds of aquatic trees and shrubs, the soil being as black as in a peat-bog. The accumulation of vegetable matter going on here in a hot climate, over so vast an area, is a subject of such high geological interest, that I shall relate what I learnt of this singular morass.

'It is one enormous quagmire, soft and muddy, except where the surface is rendered partially firm by a covering of vegetables and their matted roots; yet, strange to say, instead of being lower than the level of the surrounding country, it is actually higher than nearly all the firm and dry land which encompasses it, and, to make the anomaly complete, in spite of its semi-fluid character it is higher in the interior than towards its margin. The soil of the swamp is formed of vegetable matter, usually without any admixture of earthy particles. We have here, in fact, a deposit of peat from ten to fifteen feet in thickness, in a latitude where, owing to the heat of the sun and length of the summer, no peat-mosses like those of Europe would be looked for under ordinary circumstances.' In northern latitudes, where the climate is damp and the summer short and cool, the growth of one season does not rot away before the growth of the next has risen above it; and the more so that the situation is wet and boggy. The vegetation in fact is protected from decay by the comparative absence of heat and the presence of water, but in Carolina the former of these causes does not operate. Mr. Lyell, therefore, accounts for the formation of the "Great Dismal" in the following manner:—There are many trees like the willow which there flourish in water. The white cedars stand firmly in the softest part of the quagmire, supported by their long tap-roots, and afford, with many other evergreens, a dark shade, under which a multitude of ferns, reeds, and shrubs, from nine to eighteen feet high, and a thick carpet of mosses, four or five inches high, spring up and are protected from the rays of the sun. When these are most powerful, the large cedar (*Cupressus disticha*) and many other deciduous trees are in full leaf. The black soil formed beneath this shade, to which the mosses and the leaves make annual additions, does not perfectly resemble the peat of Europe, most of the plants being so decayed as to leave little more than soft black mud, without any traces of organization. The evaporation continually going on in the wet spongy

soil during summer cools the air, and generates a temperature resembling that of a more northern climate, or a region more elevated above the level of the sea.'

Though the swamp has been described as highest towards the middle, there is a lake seven miles long and five broad in its centre, but of no great depth. Much timber has been cut down and carried out from the morass by means of canals, which are perfectly straight for long distances, with the trees on each side arching over and almost joining their branches. There are also numerous trunks of large and tall trees buried in the mire, which, being kept wet, do not decompose, but yield the finest and most durable planks. The animals chiefly found inhabiting the "Dismal" are bears, wild cats, and occasionally a solitary wolf, but otherwise the region is as lifeless and gloomy as can be imagined. Mr. Lyell regards this swamp as a fine illustration of the mode in which coal has been formed, and argues that if the district were submerged beneath the ocean so as to receive a coating of sand or mud, that the whole vegetable mass would be converted into a modern coal-seam.

TO THE UNSATISFIED.

Why thus longing, why for ever sighing,
For the far-off, unattained and dim;
While the beautiful, all around thee lying,
Offers up its low perpetual hymn?

Wouldst thou listen to its gentle teaching,
All thy restless yearning it would still;
Leaf, and flower, and laden bee are preaching,
Thine own sphere, though humble, first to fill.

Poor, indeed, thou must be, if around thee
Thou no ray of light and joy canst throw,
If no silken cord of love hath bound thee
To some little world, through weal and woe;

If no dear eyes thy fond love can brighten—
No fond voices answer to thine own;
If no brother's sorrow thou canst lighten,
By daily sympathy and gentle tone.

Not by deeds that win the world's applauses,
Not by works that give thee world-renown,
Nor by martyrdom, or vaunted crosses,
Canst thou win and wear the immortal crown.

Daily struggling, though unloved and lonely,
Every day a rich reward will give;
Thou wilt find, by hearty striving only,
And truly loving, thou canst truly live.

Dost thou revel in the rosy morning,
When all nature hails the lord of light,
And his smile, the mountain-tops adorning,
Robes yon fragrant fields in radiance bright?

Other hands may grasp the fields and forest,
Proud proprietors in pomp may shine;
But with fervent love, if thou adorest,
Thou art wealthier—all the world is thine!

Yet if through earth's wide domains thou rovest,
Sighing that they are not thine alone,
Not those fair fields, but thyself thou lovest,
And their beauty and thy wealth are gone.

Nature wears the colour of the spirit;
Sweetly to her worshipper she sings;
All the glow, the grace she doth inherit,
Round her trusting child she fondly clings.

From Chambers's Edinburgh Journal.

OUT-DOOR TUITION.

'I think it of the utmost importance,' says Mrs. Loudon, 'to cultivate habits of observation in childhood, as a great deal of the happiness of life depends upon having our attention excited by what passes around us. I remember, when I was a child, reading a tale called "Eyes and No Eyes," which made a deep impression on my mind, and which has been the means of procuring me many sources of enjoyment during my passage through life. That little tale related to two boys, both of whom had been allowed half a day's holiday. The first boy went out to take a walk, and he saw a variety of objects that interested him, and from which he afterwards derived considerable instruction when he talked about them with his tutor. The second, a little later, took the same walk; but when his tutor questioned him as to how he liked it, he said he had thought it very dull, for he had seen nothing; though the same objects were still there that had delighted his companion. I was so much struck with the contrast between the two boys, that I determined to imitate the first; and I have found so much advantage from this determination, that I can earnestly recommend my young readers to follow my example.' To encourage and assist in such habits of observation, Mrs. Loudon has published the very pretty little book whose title is "Glimpses of Nature, and Objects of Interest."

There can be no doubt that the knowledge of things derived from observations of the things themselves is not only deeper than that acquired from books, but is more durably impressed on the mind. In the one case knowledge comes in the form of actual experience, in the other it is imbibed by rote. Abstract subjects can of course only be acquired in the study; but what ever can be taught to the young

out of doors, should be so imparted. Stores of information can be furnished to them in the shortest walk for there is something interesting to tell and to know about the most commonplace object.

To show how readily and instructively this may be done, Mrs. Loudon repeats in her book the information she imparted to her little girl during a tour in the Isle of Wight in the autumn of 1843. At every step something pleasing was communicated, coming as it did in a less repulsive form than didactic tasks. In the transit from London to Southampton by railway, Mrs. Merton (the name assumed by the authoress), in pointing out to her daughter (Agnes) the windings of the river Mole, told her that it 'received its strange name from the manner in which it creeps along, and occasionally appears to bury itself under ground, as its waters are absorbed by the spongy and porous soil through which it flows. Agnes was very anxious to hear more of this curious river. "It is remarkable," said Mrs. Merton, "that it is not navigable in any part of its long course of forty-two miles. With regard to the phenomenon of its disappearance at the foot of Box-Hill, near Dorking, in Surrey, it is supposed that there are cavities, or hollow places, under ground; which communicate with the bed of the river, and which are filled with water in ordinary seasons, but in times of drought become empty, and absorb the water from the river to re-fill them. When this is the case, the bed of the river becomes dry; and Burford bridge often presents the odd appearance of a bridge over land dry enough to be walked on. The river, however, always rises again about Letherhead, and suffers no further interruption in its course."

Arrived at the Isle of Wight, the little pupil is told that in shape it 'has been compared to that of a turbot, of which the point called the Needles forms the tail. From this point, which is extreme west, to Foreland Farm, near Benbridge, which is the extreme east, the whole island measures only twenty-four miles in length; and breadth, which is from Cowes Castle to Rock End, near Black Gang Chine, is only twelve miles. It is therefore extremely creditable to its little island to have made such a noise in the world as it has done; and its celebrity shows that, small as it is, contains a great many things worth looking at.'

At Carisbrook Castle the tourists repaired to the wall-house, 'to visit the celebrated donkey. When they first entered, Agnes was a little disappointed to see the donkey, without any bridle or other harness on, standing close in the wall, behind a great wooden wheel. "Oh mamma," cried she, "I suppose the donkey will not work to-day, as he has no harness on?" "I beg your pardon, miss," this poor little fellow does not require to be chained like your London donkeys; he does his work voluntarily. Come, sir," continued he, addressing the donkey, 'show the ladies what you can do.' The donkey shook his head in a very sagacious manner, as much as to say, 'you may depend upon me,' and sprang directly into the interior of the wheel, which was broad and hollow, and furnished in the inside with steps, formed of projecting pieces of wood nailed on, the hollow part of the wheel being broad enough to admit of the donkey between its two sets of spokes. The donkey then began walking up the steps of the wheel, in the same manner as the prisoners do on the wheel at the treadmill; and Agnes noticed that he kept looking at them frequently, and then at the well, as he went along. The man had no whip, and said nothing to the donkey while he pursued his course; but as it took some time to wind up the water, the man informed Mrs. Merton and her daughter, while they were waiting, that the well was above three hundred feet deep, and that the water could only be drawn up by the exertion of the donkeys that had been kept there; he added that three of these patient labourers had been known to have laboured at Carisbrook, the first for fifty years, the second for forty, and the last for thirty. The present donkey, he said, was only a novice in the business, as he had not been employed much above thirteen years; and he pointed to some writing inside the door, in which the date was marked down. While they were speaking, the donkey still continued his labour, and looked so anxiously towards the well, that at last Agnes asked what he was looking at. 'He is looking for the bucket,' said the man; and in fact, as soon as the bucket made its appearance, the donkey stopped, and very deliberately walked out of the wheel to the place where he had been standing when they entered.

Various lessons in natural history were conveyed when suitable objects presented themselves; and the young pupil, though only absent from home six days, received a greater amount of useful information than if she had studied from books during a much longer period. It is in the power of every parent to communicate instruction on the same plan, and we have noticed this little work chiefly for the purpose of recommending the 'out-door' system of instruction.

New Works.

A SABBATH IN THE MOUNTAINS.

DID you ever sleep near the base of a mountain in July, and wake in the morning at half-past three, and hear the birds that swarm the forest that covers it sing? There is nothing like it in the wide world! Sleeping thus in Housatonicville, a little parish that has lately organized itself, and suddenly risen into a thrifty, noble Church, I was awakened one morn-

ing by such a chaos of harmony (if I may use the paradoxical expression) from the great mountain that fairly leaned over me, that I lay perfectly entranced. First came the clear, loud carol of the robin and then the shrill note of the piper, and last of all the almost ten thousand varied intonations of the countless smaller birds that swarm our fields and forests. And they were all singing at once, and singing at the top of their voices; indeed, apparently singing on a race; pouring forth such rapid and ravishing sounds, ringing and echoing through the morning air, that the valley seemed fairly beside itself with the endless, overflowing melody.

And how sweet a Sabbath evening is, in this quiet spot! The throng of worshippers have departed from the temple of God, the echoes of prayer and praise have died away, and it stands with a solemn and half-mournful air in the departing sunlight. The Housatonic, that flows "fast by it," keeps up its steady chant, and here and there a bird from the mountain sends forth its strain; but all else is still and tranquil, as a Sabbath evening ever should be. Surrendering my heart to the influence of such a scene, and the feelings of such an hour, I have sat and watched the sunlight creep up the mountain ere it leaves the world. Half an hour ago, the valley bade it good night, and is already gathering its dark mantle around it; but look how the golden light goes up and up over the sleeping forest. There, it has just left that huge rock which but a moment before seemed pointed with gold, a black, savage frown on the forehead of the mountain; and now it has stooped over that bold upland swell; and now it seems to gallop up the steep crest; and now lingers a moment on the tallest tree tops; and lo! it has vanished from the sight. How like the lights of Eden, before the entrance of sin, did that retreating glory flee before the encroaching shades of night! A moment, the stern old mountain seems to stand mournful and lonely in its desertion, and then begins to nod on its huge bed for its evening nap, and night embraces the world. The Sabbath is ended—the day of strange and mysterious ceremonies is over, and man lies down in the hand of his Creator to sleep.—*Headley.*

THE PLEASURES OF CONTENTMENT.

I HAVE a rich neighbour that is always so busy that he has no leisure to laugh: the whole business of his life is to get money, and more money, that he may still get more and more money. He is still drudging on, and says that Solomon says: "The diligent hand maketh rich." And it is true indeed; but he considers not that it is not in the power of riches to make a man happy: for it was wisely said by a man of great observation: "That there be as many miseries beyond riches as on this side them." And yet God deliver us from pinching poverty; and grant that, having a competency, we may be content and thankful! Let us not repine, or so much as think the gifts of God unequally dealt, if we see another abound with riches; when, as God knows, the cares that are the keys that keep those riches hang often so heavily at the rich man's girdle that they clog him with weary days and restless nights, even when others sleep quietly. We see but the outside of the rich man's happiness; few consider him to be like the silk-worm, that, when she seems to play, is at the very same time spinning her own bowels, and consuming herself. And this many rich men do—loading themselves with corroding cares to keep what they have already got. Let us, therefore, be thankful for health and competence, and above all, for a quiet conscience.—*Isaac Walton.*

WIND-STORM IN AMERICA.

WHILE at Washington, I first witnessed the windstorm, which is common in this country. It is peculiar—sometimes awful. The morning had been hot, and the sky fair; I had been to the Senate, and was now resting and writing in my chamber. Quietly the soft and refreshing breezes went down; a haze came over the sun, so that it shone as behind a gauze curtain. Every noise was stilled, except that of the frog, which was unpleasantly audible. The sky got silently darker and darker; the atmosphere became oppressive; and not a breath of air was felt. Suddenly, in the distance, you would see things in commotion; and, while everything was yet quiet about you, you might hear the distant roaring of the wind. Then the cattle run away to their best shelter; then the mother calls on her heedless children; and the housewife flies from story to story, to close her windows and shutters against the entrance of the coming foe. Now the dust taken up in whirlwinds, would come flying along the roads; and then would come the gust of wind, which would make everything tremble, and set the doors, windows, and trees flying, creaking, and crashing around you. You would expect the torrent to fall and to roll; but no, there was neither rain nor thunder. It was wind, and wind alone; and it wanted nothing to increase its power on the imagination. It raged for a few minutes, and then passed as suddenly away, leaving earth and sky as tranquil and as fair as it found them. It is not easy to account for this very sudden destruction and restoration of an Equilibrium in nature. The phenomenon, however, supplies a fine illustration of some striking passages in Holy scripture.—*Dr. Reed.*

MODERATION.

Let your desires and aversions to the common objects and occurrences in this life be but few and feeble. Make it your daily business to moderate your aversions and desires, and to govern them by reason.—*Watts.*