

BY SIR JOHN LUBBOCK, BART., M.P.

I.—INTRODUCTION.



HE world we live in is a fairy land of exquisite beauty; our very existence is a miracle in itself; and yet few of us enjoy as we might, and none can as yet fully appreciate the beauties and wonders which surround us.

The greatest traveller cannot hope, even in a long life, to visit more than a very small part of our earth; and even of that which is under our very eyes how little we see! What we *do* see depends mainly on what we *look for*.

In the same field the farmer will see the crop, sportsmen the cover for game, geologists the fossils, botanists the flowers, the artist the colouring. When we look at the sky it is, in most cases, merely to see whether it is likely to rain. How slight an appreciation of colour most people have is shown by the fact that they often talk of "stone colour," just as if all stones were alike in this respect. "It is good," says Keble, "to have our thoughts lift up to that world where all is beautiful and glorious"; but it is well also to realise how beautiful this world is also.

It has, I know, been maintained—as, for instance, by Victor Hugo—that the general effect of beauty is to sadden:—"Comme la vie de l'homme, même la plus prospère, est toujours au fond plus triste que gaie, le

ciel sombre nous est harmonieux. Le ciel éclatant et joyeux nous est ironique. La nature triste nous ressemble et nous console; la nature rayonnante, magnifique, superbe . . . a quelque chose d'accablant."\*

This seems to me, I confess, a morbid view. On the other hand, there are, no doubt, many on whom the effect of natural beauty is to intensify feeling, to deepen melancholy, as well as to raise the spirits. As Mrs. Greg, in her interesting memoir of her husband, tells us:—

"His passionate love for nature, so amply fed by the beauty of the scenes around him, intensified the emotions, as all keen perception of beauty does, but it did not add to their joyousness. We speak of the pleasure which nature and art and music give us; what we really mean is that our whole being is quickened by the uplifting of the veil. Something passes into us which makes our sorrows more sorrowful, our joys more joyful,—our whole life more vivid. So it was with him. The long, solitary wanderings over the hills, and the beautiful moonlight nights on the lake, served to make the shadows seem darker that were brooding over his home."

But surely to most of us Nature, when sombre or even gloomy, is soothing and consoling; when bright and beautiful, not

\* "Choses Vues"



only raises the spirits, but inspires and elevates our whole being.

Those who love Nature can never be dull. They may have other temptations, but at least they will run no risk of being beguiled by *ennui*, idleness, or want of occupation,

Happy indeed is the Naturalist ; to him the seasons come round like old friends, to him the birds sing, and as he walks along, the flowers stretch out from the hedges and look up from the ground. "Year after year, as the flowers die away and the earth

is once more bare, he looks back delighted on the pleasant months along which he has walked hand-in-hand with Nature ; for he feels that his intelligence has been strengthened, his temper sweetened, his love of God increased, by fellowship with her changes, study of her secrets, reverence for her works."\*

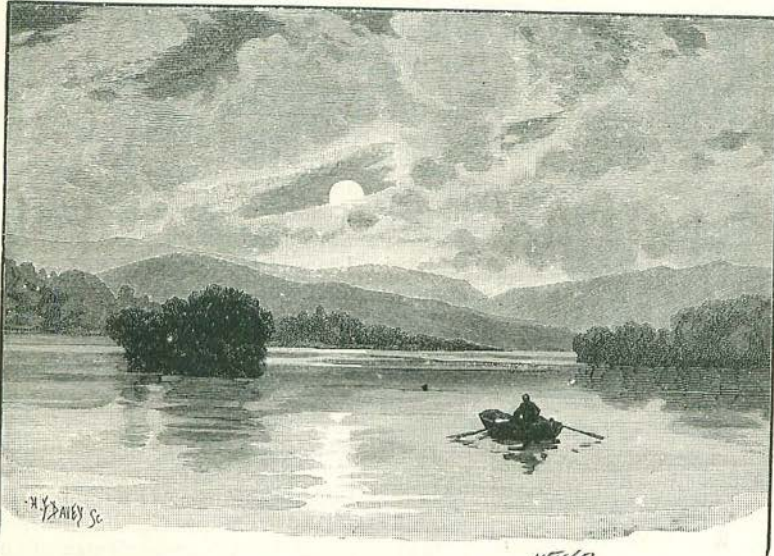
Though we can never "remount the river of our years," he who loves Nature is always young."

But what is the love of Nature ? Some people seem to think they show a love of flowers by gathering them. How often one finds a bunch of withered blossoms on the roadside, plucked only to be thrown away ! Is this love of Nature ? It is, on the contrary, a wicked waste, for a waste of beauty is almost the worst waste of all.

If we could imagine a day prolonged for a lifetime, or nearly so, and that sunrise and sunset were rare events which happened but a few times to each of us, we should certainly be entranced by the beauty of the morning and evening tints. The golden rays of the morning are a fortune in themselves ; but we overlook, in fact, the loveliness of Nature, because it is constantly before us. For "the senseless folk," says King Arthur, "is far more struck at things it seldom sees."

Well says Cicero : "Well did Aristotle observe : If there were men whose habitations had been always underground, in great and commodious houses, adorned with statues and pictures, furnished with everything which they who are reputed

\* Tuckwell.



"MOONLIGHT ON THE LAKE."

"to buy the merry madness of an hour with the long penitence of after time." The love of Nature, again, helps us greatly to keep ourselves free from those mean and petty cares which interfere so much with calm and peace of mind ; it turns "every ordinary walk into a morning or evening sacrifice," and brightens life until it becomes almost like a fairy tale.

In the romances of the Middle Ages we read of knights who loved, and were loved by, Nature spirits—of Sir Launfal and the Fairy Tryamour, who furnished him with many good things, including a magic purse in which

As oft as thou puttest thy hand therein,  
A mark of gold thou shalt iwinne,

as well as protection from the main dangers of life. Such times have passed away, but better ones have come. It is not now merely the few who are so favoured. All those who love Nature, she loves in return, and will richly reward, not perhaps with the good things, as they are commonly called, but with the best things of this world ; not with money and titles, horses and carriages, but with bright and happy thoughts, contentment and peace of mind.



happy abound with; and if, without stirring from thence, they should be informed of a certain Divine power and majesty, and, after some time, the earth should open, and they should quit their dark abode to come to us; where they should immediately behold the earth, the seas, the heavens; should consider the vast extent of the clouds and force of the winds; should see the sun, and observe his grandeur and beauty, and also his generative power, inasmuch as day is occasioned by the diffusion of his light through the sky; and when night has obscured the earth, they should contemplate the heavens bespangled and adorned with stars; the surprising variety of the moon, in her increase and wane; the rising and setting of all the stars, and the inviolable regularity of their courses; when," says he, "they should see these things, they would undoubtedly conclude that there are Gods, and that these are their mighty works."\*

We may well ask, with Thoreau—

"Is my life vulgar, my fate mean,  
Which on such golden memories can lean?"

At the same time the change which has taken place in the character of our religion, has in one respect weakened the hold which nature has upon our feelings. To the Greeks—to our own ancestors, every river or mountain or forest had not only its own deity, but in some sense was itself alive. They were not only peopled by nymphs and oreads, fauns and hamadryads, were not only the favourite abodes of Water, Forest, or Mountain spirits, but they had a conscious existence of their own.

In the Middle Ages, indeed, these spirits were regarded as often mischievous, and apt to take offence, sometimes essentially malevolent—even the most beautiful, like the Venus of Tannhäuser, being often on that very account all the more dangerous; while the mountains and forests, the lakes and seas were the abodes of hideous ghosts and horrible monsters, of giants and ogres, sorcerers and demons. These fears, though vague, were none the less extreme, and the judicial records of the Middle Ages furnish only too conclusive evidence that they were indeed a terrible reality.

The light of science has now happily dispelled these fearful nightmares. Unfortunately, however, as men have multiplied, their energies have hitherto tended not to beautify, but to mar. Forests have been

cut down, and replaced by flat fields in geometrical squares, or on the Continent in narrow strips.

Here and there, indeed, we meet with cases in which beauty has not been sacrificed to wealth; and, happily, it is found that not only is there no incompatibility, but the earth seems to reward even more richly those who have treated her with love and respect.

Scarcely any part of the world affords such a variety in so small an area as our own island. Commencing in the south, we have first the blue sea itself, the pebbly beaches and white chalk cliffs of Kent, the painted sands of Alum Bay, the red sandstone of Devonshire, granite and gneiss in Cornwall. In the south-east, again, we have the chalk downs and the well-wooded weald, and the rich hop gardens; further westwards the undulating gravelly hills, and, still further, the granite tors. In the centre of England we have, to the east, the Norfolk Broads and the Fens: then the fertile Midlands, the cornfields, rich meadows, and large oxen; and, to the west, the Welsh mountains. Further north, the Yorkshire Wolds, the Lancashire hills, the lakes of Westmoreland; lastly, the swelling hills and bleak moors, the trap dykes, and picturesque castles of Northumberland and Cumberland.

Scotland is considered by many even more beautiful.

Every month, again, has its own charms and beauty, and yet too many of us see nothing in the fields but sacks of wheat, in the meadows but trusses of hay, and in woods but planks for houses or cover for game. Even from this more prosaic point of view, how much there is to wonder at and admire in the wonderful chemistry which changes grass and leaves, flowers and seeds, into bread and milk, eggs and cream, butter and honey.

"Almost everything," says Hamerton, "that the peasant does, is lifted above vulgarity by ancient, and often sacred, associations." There is, indeed, hardly any business or occupation with reference to which the same might not be said. The triviality or vulgarity does not depend on what we do, but on the spirit in which *it is done*. Not only the regular professions, but every useful occupation in life, however humble, is honourable in itself, and may be pursued with dignity and peace.

Working in this spirit we have also the satisfaction of feeling that, as in some

\* Cicero, De Natura Deorum.



mountain track, every one who takes the right path seems to make the way clearer for those who follow ; so may we also raise the profession we adopt, and smooth the way for those who come after us. Even for those who are not agriculturists, it must be admitted that the country has special charms. One, perhaps, is the continual change. Every week brings some fresh leaf or flower, bird or insect. We sit quietly at home and Nature decks herself for us.

In truth we all love change. Some think they do not care for it, but I doubt if they know themselves.

"Not," said Jefferies, "for many years was I able to see why I went the same round and did not care for change. I do not want change ; I want the same old and loved things, the same wild flowers, the same trees and soft ash-green ; the turtle-doves, the blackbirds, the coloured yellow-hammers, sing, singing so long as there is light to cast a shadow on the dial, for such is the measure of his song, and I want them in the same place. Let me find them morning after morning, the starry-white petals radiating, striving upwards up to their ideal. Let me see the idle shadows rest-

ing on the white dust ; let me hear the humble-bees, and stay to look down on the yellow dandelion disk. Let me see the very thistles opening their great crowns—I should miss the thistles ; the reed grasses hiding the moor-hen ; the bryony bine, at first crudely ambitious and lifted by force of youthful sap straight above the hedge-row, to sink of its weight presently, and

progress with crafty tendrils ; swifts shot through the air with outstretched wings like crescent-headed, shaftless arrows darted from the clouds ; the chaffinch, with a feather in her bill ; all the living staircase of the spring, step by step, upwards to the great gallery of the summer, let me watch the same succession year by year."

After all, then, he did enjoy the change and the succession.

Kingsley, again, in his charming prose idyll, "My Winter Garden," tries to persuade himself that he was glad he had never travelled, "having never yet actually got to Paris." "Monotony," he says, "is pleasant in itself ; morally pleasant, and

morally useful. Marriage is monotonous, but there is much, I trust, to be said in favour of holy wedlock. Living in the same house is monotonous ; but three removes, say the wise, are as bad as a fire. Locomotion is regarded as an evil by our Litany. The Litany, as usual, is right. 'Those who travel by land or sea' are to be objects of our pity and our prayers, and I do pity them. I delight in that same monotony. It saves curiosity, anxiety, excitement, disappointment, and a host of bad passions."

But even as he writes one can see

that he does not convince himself. Possibly, he admits, "after all, the grapes are sour ;" and when some years later he did travel, how happy he was ! At last, he says, triumphantly, "at last we, too, are crossing the Atlantic. At last the dream of forty years, please God, would be fulfilled, and I should see (and happily not alone) the West Indies and the Spanish Main. From



"I WENT THE SAME ROUND."



childhood I had studied their natural history, their charts, their romances; and now, at last, I was about to compare books with facts, and judge for myself of the reported wonders of the earthly paradise."

No doubt there is much to see everywhere. The poet and the naturalist will find "tropical forests in every square foot of turf." It may even be better, and especially for the most sensitive natures, to live mostly in quiet scenery, among fields and hedgerows, woods and downs; but it is surely good for everyone, from time to time, to refresh and strengthen both body and mind by a spell of sea air or mountain scenery.

On the other hand we are told, and told of course with truth, that though mountains may be the cathedrals of Nature, they are especially remote from centres of population; that our great cities are grimy, dark, and ugly; that manufactures are creeping over several of our counties, blighting them into building ground, replacing trees by chimneys, and destroying every vestige of natural beauty.

But if this be true, is it not all the more desirable that our people should have access to pictures and books, which may in some small degree, at any rate, replace what they have thus unfortunately lost. Another reason why books may help us is because we cannot all travel; and even those who can, are able after all to see but a small part of the world. Moreover, though no one who has once seen them can ever forget the Alps, the Swiss Lakes, or the Riviera, still the recollection becomes less vivid as years roll on, and it is pleasant, from time to time, to be reminded of their beauties. There is one other advantage not less important. We sometimes speak as if to visit a country and to see it were the same thing. But this is not so. It is not everyone who can see Switzerland like Ruskin or Tyndall. Their beautiful description of mountain scenery depends less on their mastery of the English language, great as that is, than on their power of seeing what is before them.

It has then been to me a matter of much interest to see which aspects of Nature have given the greatest pleasure, or have most impressed those who, either from wide experience, or from their love of Nature, may be considered best able to judge.

Humboldt tells us\* that—"If I might be allowed to abandon myself to the recollection of my own distant travels, I would instance, amongst the most striking scenes of Nature, the calm sublimity of a tropical night, when the stars, not sparkling, as in our northern skies, shed their soft and planetary light over the gently heaving ocean; or I would recall the deep valleys of the Cordilleras, where the tall and slender palms pierce the leafy veil around them, and waving on high their feathery and arrow-like branches, form, as it were, 'a



"A FOREST ABOVE A FOREST."

forest above a forest'; or I would describe the summit of the Peak of Teneriffe, when a horizon layer of clouds, dazzling in whiteness, has separated the cone of cinders from the plain below, and suddenly the ascending current pierces the cloudy veil, so that the

\* Humboldt's "Cosmos."



eye of the traveller may range from the brink of the crater, along the vine-clad slopes of Orotava, to the orange gardens and banana groves that skirt the shore. In scenes like these, it is not the peaceful charm uniformly spread over the face of Nature that moves the heart, but rather the peculiar physiognomy and conformation of the land, the features of the landscape, the ever varying outline of the clouds, and their blending with the horizon of the sea, whether it lies spread before us like a smooth and shining mirror, or is dimly seen through the morning mist. All that the senses can but imperfectly comprehend, all that is most awful in such romantic scenes of Nature may become a source of enjoyment to man, by opening a wide field to the creative power of his imagination. Impressions change with the varying movements of the mind, and we are led by a happy illusion to believe that we receive from the external world that with which we have ourselves invested it."

Humboldt also singles out for especial praise the following description given of Tahiti by Darwin :—

"The land capable of cultivation is scarcely in any part more than a fringe of low alluvial soil, accumulated round the base of mountains, and protected from the waves of the sea by a coral reef, which encircles at a distance the entire line of coast. The reef is broken in several parts, so that ships can pass through, and the lake of smooth water within thus affords a safe harbour as well as a channel for the native canoes. The low land, which comes down to the beach of coral sand, is covered by the most beautiful productions of the intertropical regions. In the midst of bananas, orange, cocoanut, and bread-fruit trees, spots are cleared, where yams, sweet potatoes, sugar-cane, and pine-apples are cultivated. Even the brushwood is a fruit-tree, namely, the guava, which from its abundance is as noxious as a weed. In Brazil I have often admired the contrast of varied beauty in the banana, palm, and orange tree ; here we have in addition the bread-fruit tree, conspicuous from its large, glossy, and deeply-digitated leaf. It is admirable to behold groves of a tree, sending forth its branches with the force of an English oak, loaded with large and most nutritious fruit. However little on most occasions utility explains the delight re-

ceived from any fine prospect, in this case it cannot fail to enter as an element in the feeling. The little winding paths, cool from the surrounding shade, led to the scattered houses ; and the owners of these everywhere gave us a cheerful and most hospitable reception."

Darwin himself has told us, after going round the world, that "In calling up images of the past, I find the plains of Patagonia frequently cross before my eyes ; yet these plains are pronounced by all to be most wretched and useless. They are characterised only by negative possessions ; without habitations, without water, without trees, without mountains, they support only a few dwarf plants. Why then—and the case is not peculiar to myself—have these arid wastes taken so firm possession of my mind ? Why have not the still more level, the greener and more fertile pampas, which are serviceable to mankind, produced an equal impression ? I can scarcely analyse these feelings, but it must be partly owing to the free scope given to the imagination. The plains of Patagonia are boundless, for they are scarcely practicable, and hence unknown ; they bear the stamp of having thus lasted for ages, and there appears no limit to their duration through future time. If, as the ancients supposed, the flat earth was surrounded by an impassable breadth of water, or by deserts heated to an intolerable excess, who would not look at these last boundaries to man's knowledge with deep but ill-defined sensations ?"

Hamerton, whose wide experience and artistic power make his opinion especially important, says :—

"I know nothing in the visible world that combines splendour and purity so perfectly as a great mountain entirely covered with frozen snow, and reflected in the vast mirror of a lake. As the sun declines its thousand shadows lengthen, pure as the cold green-azure in the depth of a glacier's crevasse, and the illuminated snow takes first the tender colour of a white rose, and then the flush of a red one, and the sky turns to a pale malachite green till the rare, strange vision fades into ghastly grey, but leaves with you a permanent recollection of its too transient beauty"\*

Wallace especially and very justly praises the following description of tropical forest scenery given by Belt in his charming "Naturalist in Nicaragua" :—

\* Darwin's "Voyage of the Beagle."

\* Hamerton's "Landscape."



"On each side of the road great trees towered up, carrying their crowns out of sight amongst a canopy of foliage, and with lianas hanging from nearly every bough, and passing from tree to tree, entangling the giants in a great network of coiling cables. Sometimes a tree appears covered with beautiful flowers which do not belong to it, but to one of the lianas that twines through its branches and sends down great rope-like stems to the ground. Climbing ferns and vanilla cling to the trunks,

conias, leathery melastomæ, and succulent-stemmed, lop-sided leaved and fresh-coloured begonias are abundant, and typical of tropical American forests; but not less so are the cecropia trees, with their white stems and large palmated leaves standing up like great candelabra. Sometimes the ground is carpeted with large flowers, yellow, pink, or white, that have fallen from some invisible tree-top above; or the air is filled with a delicious perfume, the source of which one seeks around in vain,



"THE SHADOWS LENGTHEN.

and a thousand epiphytes perch themselves on the branches. Amongst these are large arums that send down long serial roots, tough and strong, and universally used instead of cordage by the natives. Amongst the undergrowth several small species of palms, varying in height from two to fifteen feet, are common; and now and then magnificent tree ferns send off their feathery crowns, twenty feet from the ground, to delight the sight by their graceful elegance. Great broad-leaved heli-

for the flowers that cause it are far overhead out of sight, lost in the great overshadowing crown of verdure."\*

"But," he adds, "the uniformity of climate which has led to this rich luxuriance and endless variety of vegetation is also the cause of a monotony that in time becomes oppressive." To quote the words of Mr. Belt:—"Unknown are the autumn tints, the bright browns and yellows of

\* Wallace's "Tropical Nature,"



English woods: much less the crimsons, purples, and yellows of Canada, where the dying foliage rivals, nay, excels, the expiring dolphin in splendour. Unknown the cold sleep of winter; unknown the lovely awakening of vegetation at the first gentle touch of spring. A ceaseless round of ever-active life weaves the fairest scenery of the tropics into one monotonous whole, of which the component parts exhibit in detail untold variety of beauty."

Siberia is, no doubt, as a rule, somewhat severe and inhospitable, but M. Patrin mentions with enthusiasm how one day, descending from the frozen summits of the Altai, he came suddenly on a view of the plain of the Obi—the most beautiful spectacle, he says, which he had ever witnessed. Behind him were barren rocks and the snows of winter, in front a great plain—not entirely green, but only green in places, and for the rest covered by three flowers—the purple Siberian Iris, the golden *Hemerocallis*, and the silvery *Narcissus*—all gold and purple and white, as far as the eye could reach.

Wallace tells us that he himself has derived the keenest enjoyment from his sense of colour:—

"The heavenly blue of the firmament, the glowing tints of sunset, the exquisite purity of the snowy mountains, and the endless shades of green presented by the verdure-clad surface of the earth, are a never-failing source of pleasure to all who enjoy the inestimable gift of sight. Yet these constitute, as it were, but the frame and background of a marvellous and ever-changing picture. In contrast with these broad and soothing tints, we have presented to us in the vegetable and animal worlds an infinite variety of objects adorned with the most beautiful and most varied hues. Flowers, insects, and birds, are the organisms most generally ornamented in this way; and their symmetry of form, their variety of structure, and the lavish abundance with which they clothe and enliven the earth, cause them to be objects of universal admiration. The relation of this wealth of colour to our mental and moral nature is indisputable. The child and the savage alike admire the gay tints of flowers, birds, and insects; while to the many of us their contemplation brings a solace and enjoyment which is both intellectually and morally beneficial. It can then hardly excite surprise that this relation was long

thought to afford a sufficient explanation of the phenomena of colour in nature, and although the fact that—

'Full many a flower is born to blush unseen,  
And waste its sweetness on the desert air,'

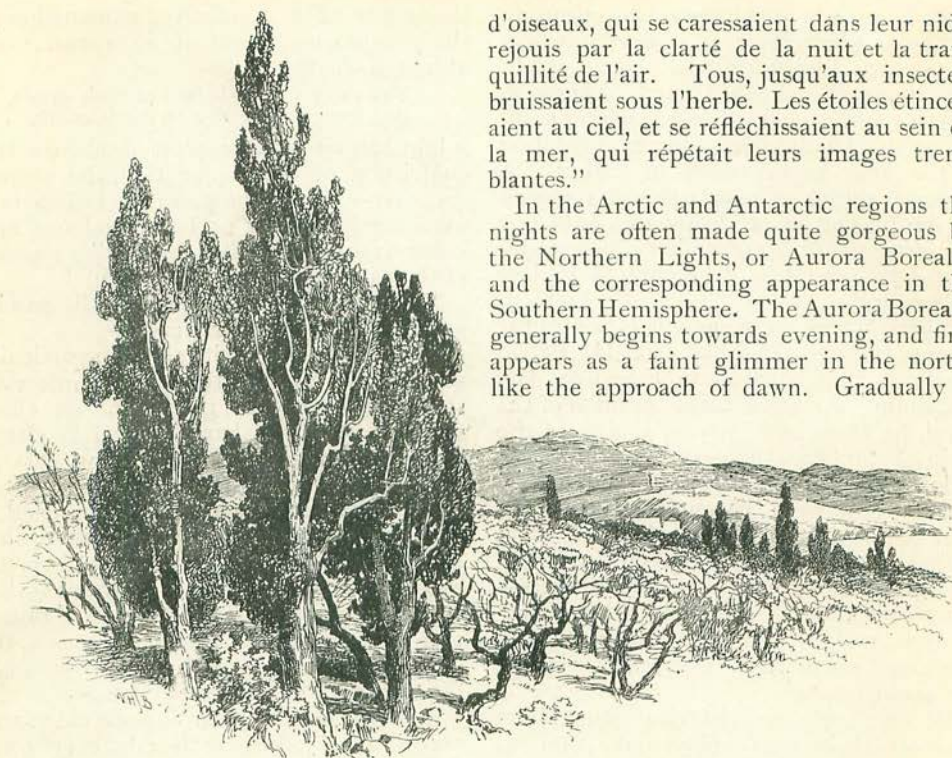
might seem to throw some doubt on the sufficiency of the explanation, the answer was easy—that in the progress of discovery, man would, sooner or later, find out and enjoy every beauty that the hidden recesses of the earth have in store for him."

Professor Colvin speaks with special admiration of Greek scenery:—

"In other climates, it is only in particular states of the weather that the remote ever seems so close, and then with an effect which is sharp and hard as well as clear; here the clearness is soft, nothing cuts or glitters, seen through that magic distance; the air has not only a new transparency so that you can see further into it than elsewhere, but a new quality, like some crystal of an unknown water, so that to see into it is greater glory." Speaking of the ranges and promontories of sterile limestone, the same writer observes that the colours of them are as austere and delicate as the forms. "If here the scar of some old quarry throws a stain, or there the clinging of some thin leafage spreads a bloom, the stain is of precious gold, and the bloom of silver. Between the blue of the sky and the ten-fold blue of the sea, these bare ranges seem, beneath that daylight, to present a whole system of noble colour flung abroad over perfect forms. And wherever, in the general sterility, you find a little moderate verdure, a little moist grass, a cluster of cypresses—or whenever your eye lights upon the one wood of the district, the long olive grove of the Cephissus, you are struck with a sudden sense of richness, and feel as if the splendours of the tropics would be nothing to this."

Though Jefferies was unfortunately never able to travel, few men have loved Nature more devotedly; and he tells us that: "Of all sweet things there is none so sweet as sweet air—one great flower it is, drawn round about, over, and enclosing us, like Aphrodite's arms, as if the dome of the sky were a bell-flower drooping down over us, and the magical essence of it filling all the room of the earth. Sweetest of all things is wild-flower air. Full of their ideal the starry flowers strained upwards on the bank, striving to keep above the rude grasses that push by them; genius has ever had such a struggle. The plain road was





"A CLUSTER OF CYPRESSES."

made beautiful by the many thoughts it gave. I came every morning to stay by the star-lit bank."

Most travellers have been fascinated by the beauty of night in the tropics. Our evenings no doubt are often delicious also, though the mild climate we enjoy is partly due to the sky being so often overcast. In parts of the tropics, however, the air is calm and cloudless throughout nearly the whole of the year. There is no dew, and the inhabitants sleep on the house-tops, in full view of the brightness of the stars, and the beauty of the sky, which is almost indescribable.

"Il faisait," says Bernardin de St. Pierre of such a scene, "une de ces nuits délicieuses, si communes entre les tropiques, et dont le plus habile pinceau ne rendrait pas la beauté. La lune paraissait au milieu du firmament, entourée d'un rideau de nuages, que ses rayons dissipaient par degrés. Sa lumière se répandait insensiblement sur les montagnes de l'île et sur leurs pitons, qui brillait d'un vert argenté. Les vents retenaient leurs haleines. On entendait dans les bois, au fond des vallées, au haut des rochers, de petits cris, de doux murmures

d'oiseaux, qui se caressaient dans leur nids, rejouis par la clarté de la nuit et la tranquillité de l'air. Tous, jusqu'aux insectes, bruissaient sous l'herbe. Les étoiles étincelaient au ciel, et se réfléchissaient au sein de la mer, qui répétait leurs images tremblantes."

In the Arctic and Antarctic regions the nights are often made quite gorgeous by the Northern Lights, or Aurora Borealis, and the corresponding appearance in the Southern Hemisphere. The Aurora Borealis generally begins towards evening, and first appears as a faint glimmer in the north, like the approach of dawn. Gradually a

curve of light spreads like an immense arch of yellowish white hue, which gains rapidly in brilliancy, flashes and vibrates like a flame in the wind. Often two or even three arches appear one over the other. After a while coloured rays flash upwards in divergent pencils, green below, yellow in the centre, and crimson above; while it is said that sometimes black or dark violet rays are interspersed among the rings of light, and heighten their effect by contrast. Sometimes the two ends of the arch seem to rise off the horizon, and the whole sheet of light throbs and undulates like an immense fringed curtain of light; sometimes the sheaves of rays unite into a gigantic cupola; while at others the separate rays seem alternately lit and extinguished. Gradually the light flickers and fades away, and has generally disappeared before the first glimpse of dawn.

The Southern Aurora is very similar, though said to be somewhat bluer and paler than that of the North.

We seldom see the Aurora in the south of England, but we must not complain; our winters are mild, and every month has its own charm and beauty.



In January we have the lengthening days.  
 In February, the first butterfly.  
 In March, the opening buds.  
 In April, the young leaves and spring flowers.  
 In May, the song of the birds.  
 In June, the sweet, new-mown hay.  
 In July, the golden grain.  
 In August, the ripening harvest.  
 In September, the fruit.  
 In October, the autumn tints.  
 In November, the hoar frost on trees and the pure snow.

In December, last, not least, the holidays of Christmas and the bright fireside.

Spring seems to revive us all. In the Song of Solomon—

"My beloved spoke, and said unto me,  
 Rise up, my love, my fair one, and come away!  
 For lo! the winter is past,  
 The rain is over and gone;  
 The flowers appear on the earth;  
 The time of the singing of birds is come,  
 The voice of the turtle is heard in our land,  
 And the vines with the tender grape give a good smell."

It is well to begin the year in January, for we have then before us all the hope of spring.

"Oh, wind!  
 If winter comes, can  
 spring be far behind?"\*

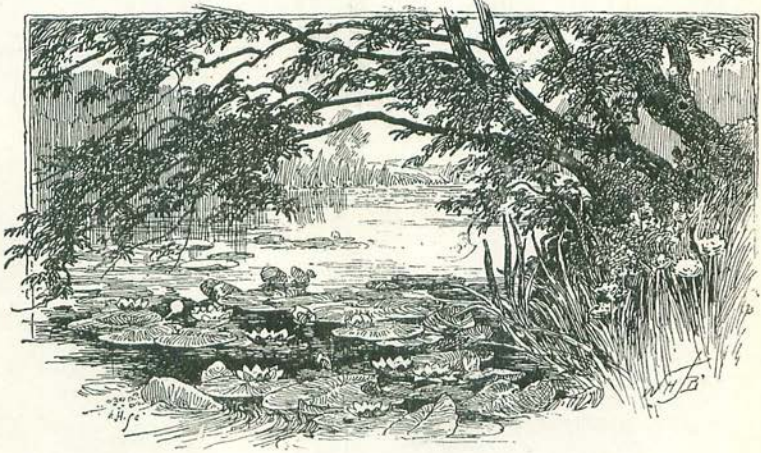
"But indeed there are days," says Emerson, "which occur in this climate at almost any season of the year, wherein the world reaches its perfection, when the air, the heavenly bodies, and the earth, make a harmony, as if Nature would indulge her offspring. . . ."

"These halcyons may be looked for with a little more assurance in that pure October weather, which we distinguish by the name of the Indian summer. The day, immeasurably long, sleeps over the broad hills and warm, wide fields. To have lived through all its sunny hours seems longevity enough. Yet does not the very name of Indian summer imply the superiority of the summer itself—the real, the true Summer, when the young corn is

bursting into ear, the awned heads of rye, wheat, and barley, and the nodding panicles of oats, shoot from their green and glaucous stems in broad, level, and waving expanses of present beauty and future promise? The very waters are strewn with flowers; the buck-bean, the water-violet, the elegant flowering rush, and the queen of the waters, the pure and splendid white lily, invest every stream and lonely mere with grace."\*

For our greater power of perceiving, and therefore of enjoying Nature, we are greatly indebted to science. Over and above what is visible to the unaided eye, the two magic tubes, the telescope and microscope, have revealed to us, at least partially, the infinitely great and the infinitely little.

I believe also that Science, our fairy god-mother, will, unless we perversely reject her help and refuse her gifts, so richly endow us, that fewer hours of labour will serve to supply us with the material necessities of life, leaving us more time to ourselves, more leisure to enjoy all that makes life best worth living.



THE WHITE LILY.

"If any one," says Seneca, "gave you a few acres, you would say that you had received a benefit; can you deny that the boundless extent of the earth is a benefit? If a house were given you, bright with marble, its roof beautifully painted with colours and gilding, you would call it no small benefit. God has built for you a mansion that fears no fire or ruin. . . . covered with a roof which glitters in one fashion by day, and in another by night."†

\* Shelley.

\* Howitt's "Book of the Seasons."

† Seneca, De Beneficiis.





## BEAUTY IN NATURE

BY

SIR JOHN LUBBOCK, BART., M.P.

### II.—WOODS AND FIELDS.

**R**URAL life," says Cicero, "is not delightful by reason of cornfields only and meadows, and vineyards and groves, but also for its gardens and orchards; for the feeding of cattle, the swarms of bees, and the variety of all kinds of flowers." Bacon considered that a garden is "the greatest refreshment to the spirits of man; without which buildings and palaces are but gross handiworks, and a man shall ever see, that when ages grow to civility and elegancy men come to build stately sooner than to garden finely, as if gardening were the greater perfection." No doubt "the pleasure which we take in a garden is one of the most innocent delights in human life."\* Elsewhere there may be scattered flowers, or sheets of colour due to one or two species, but in gardens one glory follows another. Here are brought together all the

Quaint enamelled eyes,  
That on the green turf suck the honeyed showers,  
And purple all the ground with vernal flowers.  
Bring the rathe primrose that forsaken dies,

The tufted crow-toe, and pale jessamine,  
The white pink and the pansy freaked with jet,  
The glowing violet,  
The musk rose, and the well-attired woodbine,  
With cowslips wan that hang the pensive head,  
And every flower that sad embroidery wears.\*

We cannot, happily we need not try to, contrast or compare the beauty of gardens with that of woods and fields.

And yet, to the true lover of Nature, wild flowers have a charm which no garden can equal. Cultivated plants are but a living herbarium. They surpass, no doubt, the dried specimens of a museum; but, lovely as they are, they can be no more compared with the natural vegetation of our woods and fields, than the captives in the Zoological Gardens with the same wild species in their native forests and mountains.

Often, indeed, our woods and fields even rival gardens in the richness of colour. We have all seen meadows glorious with Narcissus and early purple Orchis, Cowslips, Buttercups, or Cuckoo flowers; cornfields blazing with poppies; woods carpeted with Bluebells, Anemones, Primroses, and Forget-

\* *The Spectator.*

\* Milton.



me-nots ; commons with the yellow Lady's-bedstraw, Harebells, and the sweet Thyme ; marshy places with the yellow stars of the Bog Asphodel, the Sundew sparkling with diamonds, Ragged Robin, the beautifully fringed petals of the Buckbean, the lovely little Bog Pimpernel, or the feathery tufts of Cotton grass ; hedgerows with Hawthorn and Traveller's Joy, wild Rose, Honeysuckle, and Bryony ; underneath are the curious leaves and orange fruit of the Lords and Ladies, the snowy stars of the Stitchwort, Succory, Yarrow, and several kinds of Violets ; while all along the banks of streams are the tall, red spikes of the Loosestrife, the Hemp Agrimony, water Groundsel, Sedges, Bulrushes, flowering Rush, and Sweet Flag.

Many other sweet names will also at once occur to us—Snowdrops, Daffodils, Heart's-ease, Lady's-mantles and Lady's-tresses, Eyebright, Milkwort, Foxgloves, Herb Roberts, Geraniums, and among rarer species, at least in England, Columbine and Elecampane.

But Nature does not provide delights for the eye only. The other senses are not forgotten. A thousand sounds—many delightful in themselves, and all by association—songs of birds, hum of insects, rustle of leaves, ripple of water—seem to fill the air. Flowers, again, are sweet as well as lovely. The scent of pine woods, which is said to be very healthy, is certainly delicious, and the effect of woodland scenery is good for the mind as well as for the body.

"Resting quietly under an ash tree, with the scent of flowers, and the odour of green buds and leaves, a ray of sunlight yonder lighting up the lichen and the moss on the oak trunk, a gentle air stirring in the branches above, giving glimpses of fleecy clouds sailing in the ether, there comes into the mind a feeling of intense joy in the simple fact of living."\*

Woods and forests were to our ancestors the special scenes of enchantment.

The great ash tree Ygzdrasil bound together heaven, earth, and hell. Its top reached to heaven, its branches covered the earth, and the roots penetrated into hell. The three Normas, or Fates, sat under it spinning the thread of life.

Of all the gods and goddesses of classical mythology or our own folk-lore, none were more fascinating than the Nature Spirits, Elves and Fairies, Neckhans and Kelpies,

Pixies and Ouphes, Mermaids, Undines, Water Spirits, and all the Elfin World—

Which have their haunts in dale and piny mountain,  
Or forests, by slow stream or tingling brook.

They come out, as we are told, especially on moonlight nights. But while evening thus clothes many a scene with poetry, forests are fairyland all day long.

Almost any wood contains many and many a spot well suited for fairy feasts ; where one might almost expect to find Titania resting, as once we are told :

She lay upon a bank, the favourite haunt  
Of the spring wind in its first sunshine hour,  
For the luxuriant strawberry blossoms spread  
Like a snow shower then, and violets  
Bowed down their purple vases of perfume  
About her pillow—linked in a gay band  
Floated fantastic shapes ; these were her guards,  
Her lithe and rainbow elves.

In early spring the woods are bright with the feathery catkins of the willow, followed by the bright green of the beech, the white or pink flowers of the thorn, the pyramids of the horse-chestnut, festoons of the laburnum and acacia, while the oak slowly wakes from its winter sleep, and the ash leaves long linger in their black buds.

Under foot is a carpet of flowers—  
anemones, cowslips, primroses, bluebells ;  
and the golden blossoms of the broom,  
which, however, while gorse and heather  
continue in bloom for months, "blazes for  
a week or two, and is then completely ex-  
tinguished, like a fire that has burnt itself  
out."\*

In summer the tints grow darker, the birds are more numerous and full of life, the air teems with insects, with the busy murmur of bees and the idle hum of flies, while the cool of morning and evening, and the heat of the day are all alike delicious.

As the year advances and the flowers wane, we have many beautiful fruits and berries, the red hips and haws of the wild roses, scarlet hollyberries, crimson yew cups, the translucent berries of the guelder rose, hanging coral clusters of the black bryony, feathery festoons of the traveller's joy, and many others less conspicuous, but still exquisite in themselves—acorns, beech nuts, ash-keys, and many more.

It is really difficult to say which are most beautiful, the tender greens of spring, or the rich tints of autumn, which glow so brightly in the sunshine.

Tropical fruits are even more striking. No one who has seen it can ever forget a

\* Jefferies' "Wild Life in a Southern Country."

\* Hamerton.



grove of orange trees in full fruit ; while the more we examine the more we find to admire—all perfectly and exquisitely finished “*usque ad unguis*,” perfect inside and outside, for Nature

Does in the pomegranate close,  
Jewels more rare than Ormus shows.\*

In winter the woods are comparatively bare and lifeless, even the brambles and woodbine, which straggle over the tangle of underwood, being almost leafless.

Still, even then they have a beauty and interest of their own : the mossy boles of the trees, the delicate tracery of the

numerous, many of our birds being then far away in the dense African forests, on the other hand those which remain are much more easily visible. We can follow the birds from tree to tree and the squirrel from bough to bough.

It requires little imagination to regard trees as conscious beings ; indeed, it is almost an effort not to do so.

“The various action of trees,” says Ruskin, “rooting themselves in inhospitable rocks, stooping to look into ravines, hiding from the search of glacier winds, reaching forth to the rays of rare sunshine, crowding down together to drink at sweetest streams, climbing hand in hand among the difficult slopes, opening in sudden dances among the mossy knolls, gathering into companies at rest among the fragrant fields, gliding in grave procession over the heavenward ridges—nothing of this can be conceived among the unvexed and unvaried



branches, which can hardly be appreciated when they are covered with leaves, and under foot the beds of fallen leaves ; while the evergreens seem brighter than in summer, the ruddy stems and rich green foliage of the Scotch pines and the dark spires of the firs seeming to acquire fresh beauty.

Again, in winter, though no doubt the living tenants of the woods are much less

“THE WOODS ARE BARE AND LIFELESS.”

felicities of the lowland forest ; while to all these direct sources of greater beauty are added, first the power of redundance—the mere quantity of foliage visible in the folds and on the promontories of a

\* Marsell.



single Alp being greater than that of an entire lowland landscape (unless a view from some Cathedral tower); add to this charm of redundancy that of clearer visibility—tree after tree being constantly shown in successive height, one behind another, instead of the mere tops and flanks of masses, as in the plains; and the forms of multitudes of them continually defined against the clear sky, near and above, or against white clouds entangled among their branches, instead of being confused in dimness of distance."

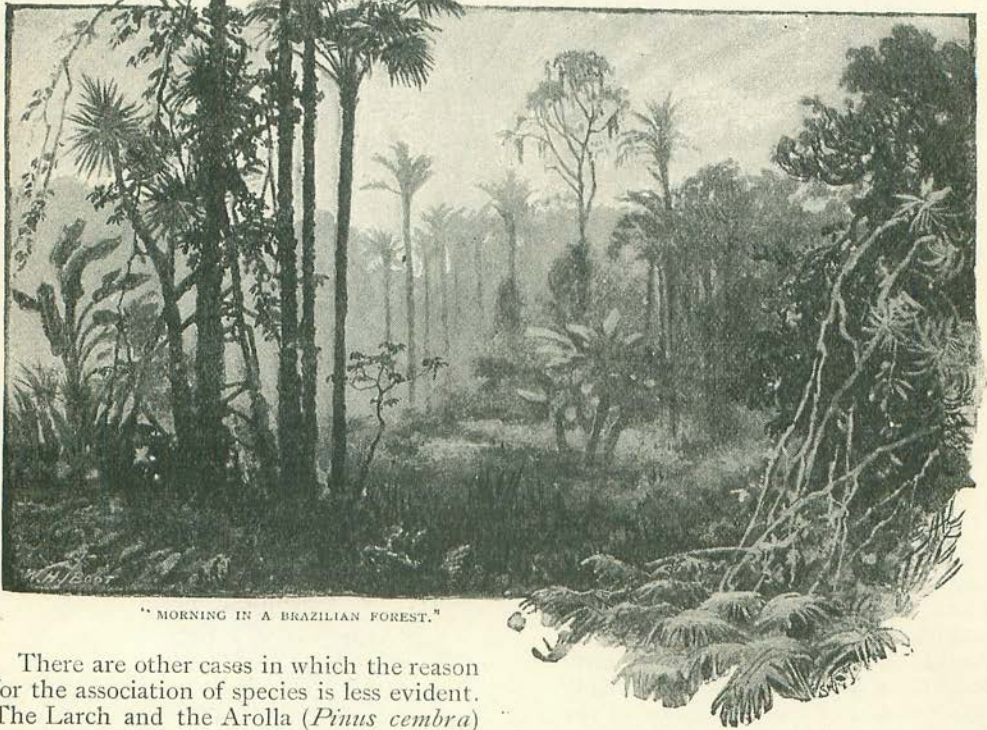
There is much that is interesting in the relations of one species to another. Many plants are parasitic upon others. The foliage of the beech is so thick that scarcely anything will grow under it except those spring plants, such as the anemone and the wood buttercup or goldylocks, which flower early before the beech is in leaf.

Another very remarkable case which has recently been observed is the relation existing between some of our forest trees and certain fungi the species of which have not yet been clearly ascertained. The root tips of the trees are, as it were, enclosed in a thin sheet of closely woven mycelium. It was at first supposed that the fungus was attacking the roots of the tree, but it is now considered that the tree and the fungus mutually benefit one another. The fungus collects nutriment from the soil, which passes into the tree and up to the leaves, where it is elaborated into sap, the greater part being utilised by the tree, but a portion reabsorbed by the fungus. There is reason to think that, in some cases at any rate, the mycelium is that of the truffle.

The great tropical forests have a totally different character from ours.

Sir Wyville Thomson graphically describes a morning in a Brazilian forest:—

"The night was almost absolutely silent.



"MORNING IN A BRAZILIAN FOREST."

There are other cases in which the reason for the association of species is less evident. The Larch and the Arolla (*Pinus cembra*) are close companions. They grow together in Siberia; they do not occur in Scandinavia or Russia, but both appear in certain Swiss valleys, especially in the cantons of Lucerne and Valais and the Engadine.

Only now and then a peculiarly shrill cry of some night bird reached us from the woods. As we got into the skirt of the forest, the morning broke, but the reveil in a Brazilian forest is wonderfully different



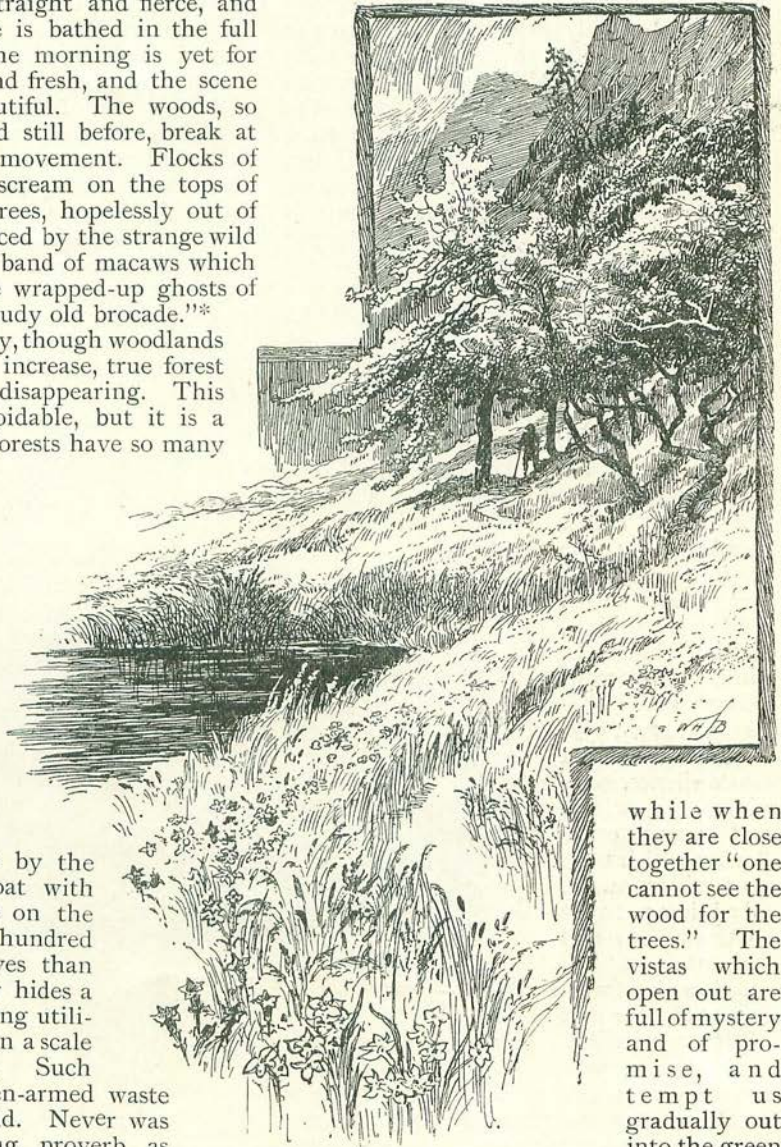
from the slow creeping on of the dawn of a summer morning at home, to the music of the thrushes answering one another's full rich notes from neighbouring thorn-trees. Suddenly a yellow light spreads upwards in the east, the stars quickly fade, and the dark fringes of the forest and the tall palms show out black against the yellow sky, and almost before one has time to observe the change the sun has risen straight and fierce, and the whole landscape is bathed in the full light of day. But the morning is yet for another hour cool and fresh, and the scene is indescribably beautiful. The woods, so absolutely silent and still before, break at once into noise and movement. Flocks of toucans flutter and scream on the tops of the highest forest trees, hopelessly out of shot; the ear is pierced by the strange wild screeches of a little band of macaws which fly past you like the wrapped-up ghosts of the birds on some gaudy old brocade."\*

In our own country, though woodlands are perhaps on the increase, true forest scenery is gradually disappearing. This is, I suppose, unavoidable, but it is a matter of regret. Forests have so many charms of their own. They give delightful impressions of space and of abundance.

The extravagance is sublime. Trees, as Jefferies says, "throw away handfuls of flowers; but in the meadows the careless, spend-thrift ways of grass and flower and all things are not to be expressed. Seeds by the hundred million float with absolute indifference on the air. The oak has a hundred thousand more leaves than necessary, and never hides a single acorn. Nothing utilitarian—everything on a scale of splendid waste. Such noble, broadcast, open-armed waste is delicious to behold. Never was there such a lying proverb as 'Enough is as good as a feast.' Give me the feast, give me squandered millions of seeds, luxurious carpets of

petals, green mountains of oak-leaves. The greater the waste, the greater the enjoyment—the nearer the approach to real life."

Nowhere is woodland scenery more beautiful than where it passes gradually into the open country. The separate trees, having more room both for their roots and branches, are finer, and can be better seen,



"BY THE SHORES OF THE SWISS LAKES."

while when they are close together "one cannot see the wood for the trees." The vistas which open out are full of mystery and of promise, and tempt us gradually out into the green fields.

What pleasant memories these very words recall, games in the hay as children, and sunny summer days throughout life.

\* Thomson's "Voyage of the Challenger."



"Go out," says Ruskin, "in the spring time, among the meadows that slope from the shores of the Swiss lakes to the roots of their lower mountains. There, mingled with the taller gentians and the white narcissus, the grass grows deep and free; and, as you follow the winding mountain paths, beneath arching boughs all veiled and dim with blossom—paths that for ever droop and rise over the green banks and mounds, sweeping down in scented undulation, steep to the blue water, studded here and there with new-mown heaps, filling all the air with fainter sweetness—look up towards the higher hills, where the waves of everlasting green roll silently into their long inlets among the shadows of the pines; and we may, perhaps, at last know the meaning of those quiet words of the 147th Psalm: 'He maketh the grass to grow upon the mountains.'"

In the passage just quoted, Ruskin alludes especially to Swiss meadows. They are especially remarkable in the beauty and variety of flowers. In our fields the herbage is mainly grass, and if it often happens that they glow with buttercups or are white with ox-eye daisies, these are but unwelcome intruders, and add nothing to the value of the hay. Swiss meadows, on the contrary, are sweet and lovely with wild geraniums, harebells, bluebells, pink restharrow, yellow lady's-bed-straw, chervil, eye-bright, red and white silenes, geraniums, gentians, and many other flowers which have no familiar names, all adding, not only to the beauty and sweetness of the meadows, but forming a valuable part of the crop itself.\*

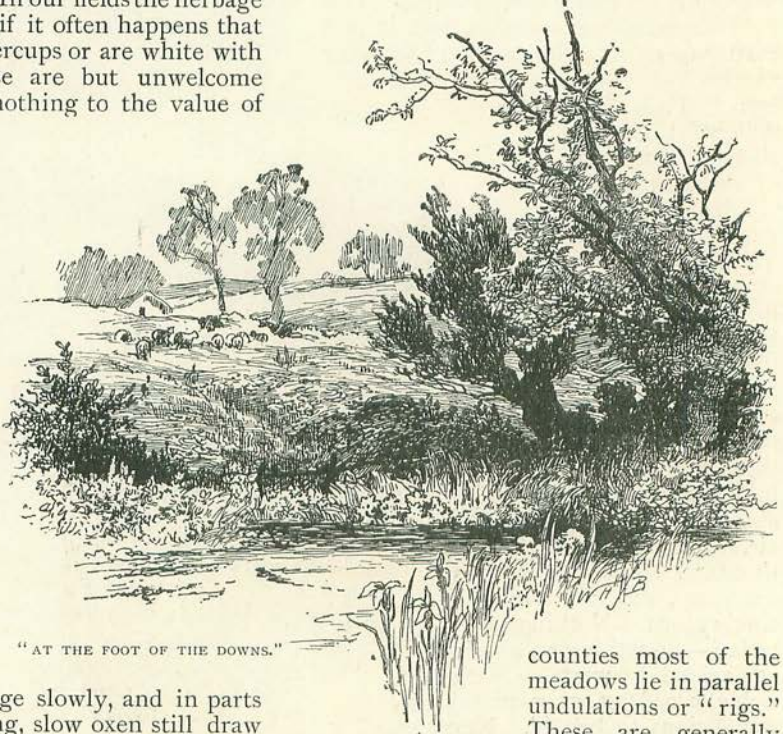
On the downs, indeed, things change slowly, and in parts of Sussex the strong, slow oxen still draw the wagons laden with warm hay or golden wheat sheaves, or drag the wooden plough

along the slopes of the downs, just as they did a thousand years ago.

I love the open downs most, but without hedges England would not be England. Hedges are everywhere full of beauty and interest, and nowhere more so than at the foot of the downs, where they are in great part composed of wild guelder roses and rich, dark yews, decked with festoons of traveller's joy, the wild bryonies, and garlands of wild roses covered with thousands of white or delicate pink flowers, each with a centre of gold.

At the foot of the downs spring sparkling, clear streams; rain from heaven purified still further by being filtered through a thousand feet of chalk; fringed with purple loosestrife, and willowherb, starred with white water ranunculuses, or rich water-cress, while every now and then a brown water-rat rustles in the grasses at the edge, and splashes into the water, or a pink speckled trout glides out of sight.

In many of our Midland and Northern



"AT THE FOOT OF THE DOWNS."

counties most of the meadows lie in parallel undulations or "rigs."

These are generally about a furlong (220 yards) in length, and either one or two poles (5½ or 11 yards) in breadth. They seldom run straight, but tend to curve towards the left. At each end of the field a high bank, locally called a balk, often three or four feet high, runs at

\* M. Corveon informs me that the Gruyère cheese is supposed to owe its peculiar flavour to the Alpine *Alchemilla*, which is now on that account often purposely grown elsewhere.



right angles to the rigs. In small fields there are generally eight, but sometimes ten, of these rigs, which make in the one case four, in the other five acres. These curious characters carry us back to the old tenures, and archaic cultivation of land, and to a period when the fields were not in pasture, but were arable.

The team generally consisted of eight oxen. Few peasants, however, possessed a whole team, several generally joining together and dividing the produce. Hence the number of "rigs," one for each ox. We often, however, find ten instead of eight; one being for the parson's tithe, the other tenth going to the ploughman.

When eight oxen were employed, the goad would not, of course, reach the leaders, which were guided by a man who walked on the near side. On arriving at the end of each furrow, he turned them round, and, as it was easier to pull than to push them, this gradually gave the furrow a turn towards the left, thus accounting for the slight curvature. Lastly, while the oxen rested on arriving at the end of the furrow, the ploughman scraped off the earth which had accumulated on the coulter and plough-share, and the accumulation of these scrapings gradually formed the balk.

It is fascinating thus to trace indications of old customs and modes of life, but it would carry us away from the present subject.

Even though the Swiss meadows may offer a greater variety, our English fields are yet rich in flowers: yellow with cowslips and primroses, pink with cuckoo flowers and purple with orchis, while buttercups, however unwelcome to the eye of the farmer, turn many a meadow into a veritable field of the cloth of gold, and there are few prettier sights in nature than an English hay-field on a summer evening, with a copse, perhaps, at one side, and a brook on the other; men with forks tossing the hay in the air to dry; women with wooden rakes arranging it in swaithes ready for the great four-horse waggon, or collecting it in cocks for the night; while some way off the mowers are still at work, and we hear from time to time the pleasant sound of the sharpening of the scythe. All are working with a will, lest rain should come and their labour be thrown away. This too often happens. But, though we often complain of our English climate, it is yet, take it all in all, one of the best in the world, being comparatively free from extremes either of heat or cold, drought or deluge. To the happy mixture of sunshine and rain we owe the greenness of our fields, lit and

Warmed by golden sunshine,  
And fed by silver rain,

which now and again sprinkles the whole earth with diamonds.







*BEAUTY  
IN NATURE*

BY SIR JOHN LUBBOCK, BART., M.P.

III.—RIVERS AND LAKES.



ACCORDING to the traditions of ancient times, running water was proof against all sorcery and witchcraft—

“No spell could stay the living tide,  
Or charm the rushing stream.”\*

There was much truth, as well as beauty, in this idea. Flowing waters have not only power to wash away material stains, and to cleanse the outward body, but they also clear away the cobwebs of the brain—the results of over incessant work—and restore us to health and strength.

Snowfields and glaciers, mountain torrents, sparkling brooks, and stately rivers; pools, and lakes; and last, not least, the great ocean itself, all alike possess this magic power.

“When I would beget content,” says Izaak Walton, “and increase confidence in the power, and wisdom, and providence of Almighty God, I will walk the meadows by some gliding stream, and there contemplate the lilies that take no care, and those very many other little living creatures that are not

only created, but fed (man knows not how) by the goodness of the God of nature, and therefore trust in Him;” and in his quaint, old language he craves a special blessing on all those “that are true lovers of virtue, and dare trust in His providence, and be quiet and go a-angling.”

“Of all inorganic substances,” says Ruskin, “acting in their own proper nature, and without assistance or combination, water is the most wonderful. If we think of it as the source of all the changefulness and beauty which we have seen in the clouds; then as the instrument by which the earth we have contemplated was modelled into symmetry, and its crags chiselled into grace; then as, in the form of snow, it robes the mountains it has made, with that transcendent light which we could not have conceived if we had not seen; then as it exists in the foam of the torrent, in the iris which spans it, in the morning mist which rises from it, in the deep crystalline pools which mirror its hanging shore, in the broad lake and glancing river; finally, in that which is to all human minds the best emblem of un-

\* Leyden.



wearied, unconquerable power, the wild, various, fantastic, tameless unity of the sea; what shall we compare to this mighty, this universal element for glory and for beauty? or how shall we follow its eternal changefulness of feeling? It is like trying to paint a soul."

At the water's edge flowers are especially varied and luxuriant, so that the banks of a river are a long natural garden of tall and graceful grasses and sedges, the Flowering Rush, the Sweet Flag, the Bull Rush, Purple Loosestrife, Hemp Agrimony, Forget-me-not, and a hundred more; backed by Willows, Alders, Poplars, and other trees.

The animal world, if less conspicuous to the eye, is quite as fascinating to the imagination. Here and there a speckled trout may be detected (rather by the shadow than the substance) suspended in the clear water, or darting across a shallow. If we are quiet we may see water-hens or wild ducks swimming among the lilies, a kingfisher sitting on a branch or flashing away like a gleam of light; a solemn heron stands, maybe, at the water's edge, or slowly rises flapping his great wings; water rats, neat and clean little creatures, very different from their coarse brown namesakes of the land, are abundant everywhere; nor need we even yet quite despair of seeing the otter himself.

Insects, of course, are gay, lively, and innumerable; but, after all, the richest fauna is that visible only with a microscope.

"To gaze," says Dr. Hudson, "into that wonderful world which lies in a drop of

water, crossed by some stems of green weed, to see transparent living mechanism at work, and to gain some idea of its modes of action, to watch a tiny speck that can sail through the prick of a needle's point, to see its crystal armour flashing with ever-varying tint, its head glorious with the halo of its quivering cilia; to see it gliding through the emerald stems, hunting for its food, snatching at its prey, fleeing from its enemy, chasing its mate (the fiercest of our passions blazing in an invisible speck); to see it whirling in a mad dance, to the sound of its own music, the music of its happiness,

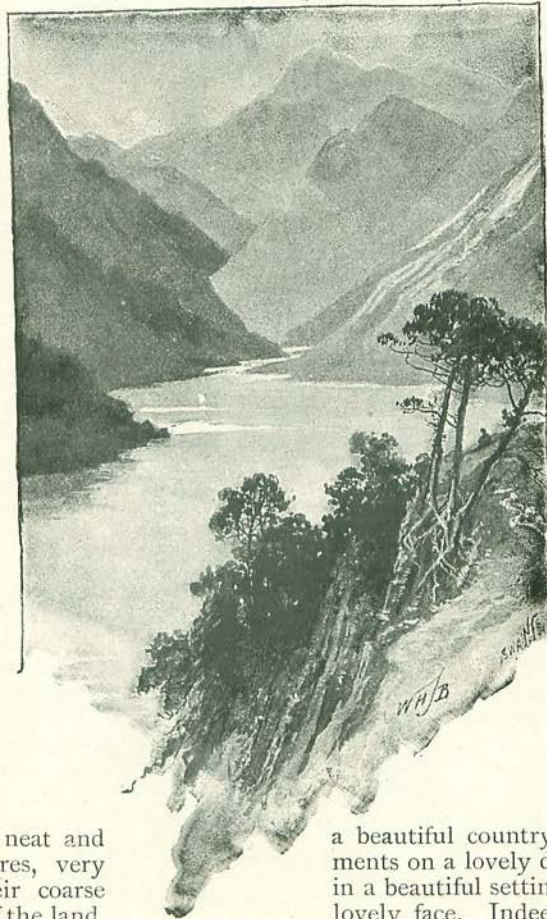
the exquisite happiness of living—can anyone who has once enjoyed this sight ever turn from it to mere books and drawings without the sense that he has left all fairy-land behind him?"\*

The study of natural history has indeed the special advantage of carrying us into the country and the open air.

Lakes are even more restful than rivers or the sea. Rivers are always flowing, though it may be but slowly; the sea may rest awhile, now and then, but is generally full of action and energy, while lakes seem to sleep and dream. Lakes in

a beautiful country are like silver ornaments on a lovely dress, like liquid gems in a beautiful setting, or bright eyes in a lovely face. Indeed, as we look down on a lake from some hill or cliff it almost looks solid, like some great blue crystal. It is interesting and delightful to trace a river from its source to the sea.

"Beginning at the hill-top," says Geikie, "we first meet with the spring, or 'well-



LAKES SEEM TO SLEEP AND DREAM.

\* Dr. Hudson, Address to the Microscopical Soc., 1889.



eye, from which the river takes its rise. A patch of bright green, mottling the brown heathy slope, shows where the water comes to the surface, a treacherous covering of verdure often concealing a deep pool beneath. From its source the rivulet trickles along the grass and heath, which it soon cuts

cavern, though in others the end of the glacier is encumbered and concealed by earth and stones.

The uppermost Alpine valleys are perhaps generally, though by no means always, a little desolate and severe. The sides are clothed with pasture, which is flowery indeed, though of course the flowers are not visible at a distance, interspersed with live rock and fallen masses, while along the bottom rushes a white torrent. The snowy mountains are generally more or less hidden by the shoulders

of the hills.

The valleys further down widen, and become more varied and picturesque. The snowy peaks and slopes are more often visible; the "alps," or pastures to which the cows are taken in summer, are greener,

and dotted with the huts or chalets of the cowherds; while the tinkling of the cowbells comes to one from time to time, softened by distance, and suggestive of mountain rambles. Below the alps there is generally a steeper part clothed with firs, or with larches and pines, some of which seem as if they were scaling the mountains in regiments, preceded by a number of skirmishers.

Below the fir

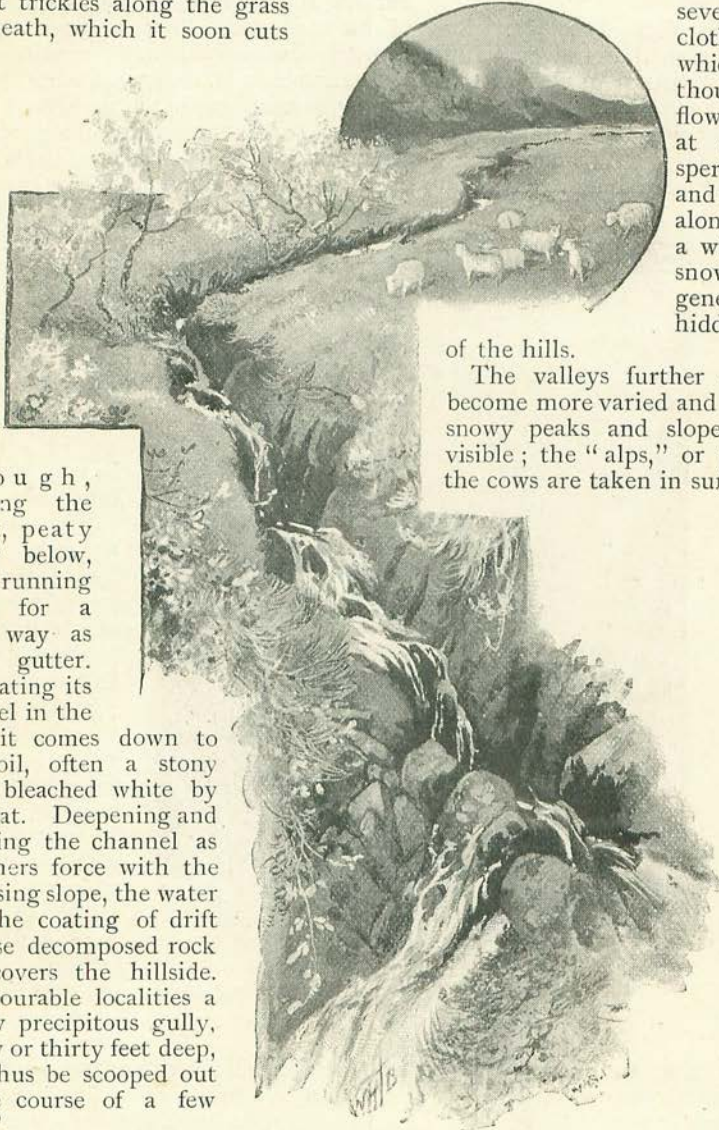
woods again are beeches, chestnuts, and other deciduous trees, while the central cultivated portion of the valley is partly arable, partly pasture; the latter differing from our meadows in containing a large proportion of flowers.

Apart from the action of running water,

through, reaching the black, peaty layer below, and running in it for a short way as in a gutter. Excavating its channel in the peat, it comes down to the soil, often a stony earth bleached white by the peat. Deepening and widening the channel as it gathers force with the increasing slope, the water digs the coating of drift or loose decomposed rock that covers the hillside. In favourable localities a narrow precipitous gully, twenty or thirty feet deep, may thus be scooped out in the course of a few years."

If, however, we trace one of the Swiss rivers to its source, we shall often find that it begins in a snowfield, or neve, nestled in a shoulder of some great mountain.

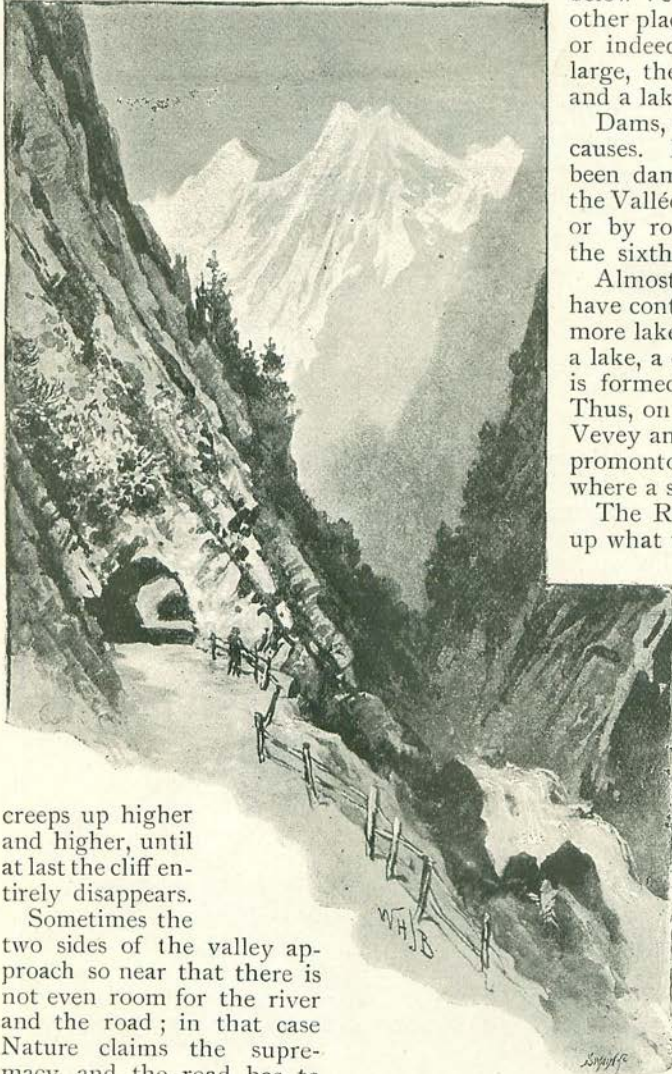
Below the neve lies a glacier—on, in, and under which the water runs in a thousand little streams, eventually emerging at the end, in some cases forming a beautiful blue



"DEEPENING AND WIDENING AS IT GATHERS FORCE."



snow and frost are continually disintegrating the rocks, and thus gradually lowering the higher peaks. At the base of almost any steep cliff may be seen a slope of *débris*. This stands at a regular angle—the angle of repose—and, unless it is gradually removed by a stream at the base, gradually



"A TUNNEL THROUGH THE ROCK."

creeps up higher and higher, until at last the cliff entirely disappears.

Sometimes the two sides of the valley approach so near that there is not even room for the river and the road; in that case Nature claims the supremacy, and the road has to be carried in a cutting, or perhaps in a tunnel through the rock. In other cases Nature is not at one with herself. In many places the *débris* from the rocks above would reach right across the valley and dam up the stream. Then arises a struggle between rock and river, but the river is always victorious in the end; even if dammed back for a while, it concentrates

its force, rises up the rampart of rock, rushes over triumphantly, resumes its original course, and gradually carries the enemy away.

Sometimes two lateral valleys come down nearly opposite one another, so that the cones meet, as, for instance, some little way below Vernayaz, and indeed, in several other places in the Valais. In this case, or indeed by one, if it is sufficiently large, the valley may be dammed up, and a lake formed.

Dams, indeed, may be due to other causes. In some cases valleys have been dammed by ice—for instance, in the Vallée de Bagnes, in the year 1818; or by rock falls, as in the Valais, in the sixth century.

Almost all river valleys contain, or have contained in their course, one or more lakes, and when a river falls into a lake, a cone, like those just described, is formed, and projects into the lake. Thus, on the Lake of Geneva, between Vevey and Villeneuve, are several such promontories, each marking the place where a stream falls into the lake.

The Rhone itself has not only filled up what was once the upper end of the lake, but has built out a strip of land into the lake.

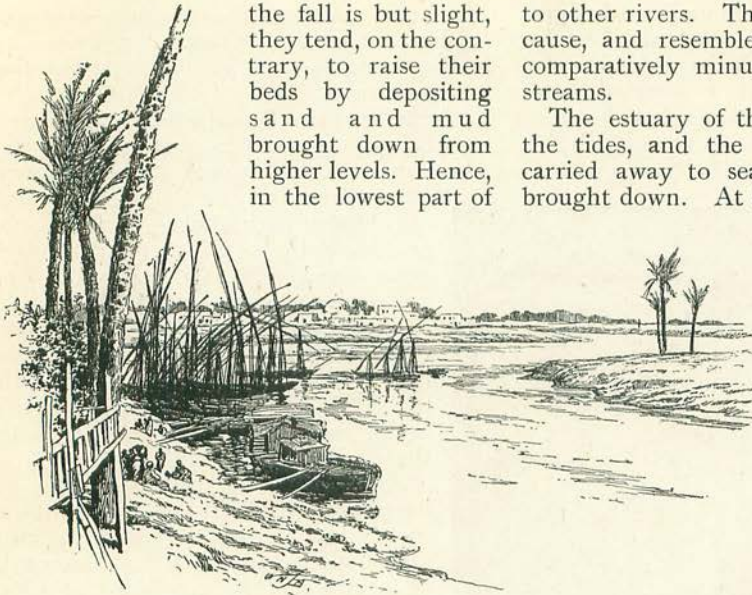
That the lake formerly extended far up the Valais no one can doubt who looks at the flat ground about Villeneuve. It is clear that the valley must formerly have been much deeper, and that it has been filled up by material brought down by the Rhone, a process which is still continuing.

At the other end of the lake the river rushes out fifteen feet deep of, "not flowing, but flying, water, not water neither—melted glacier matter one should call it; the force of the ice with it, and the wreathing of the clouds, the gladness of the sky, and the countenance of time."\*

It would, however, be a great mistake to suppose that rivers always tend to excavate their valleys. This is only the case when the slope exceeds a certain angle. When

\* Ruskin.





THE NILE.

their course, many of the most celebrated rivers, the Nile, the Po, the Mississippi, the Thames, &c., run upon embankments, partly of their own creation.

When not interfered with by man, rivers under such conditions sooner or later break through their banks, and, leaving their former bed, take a new course along the lowest part of their valley, which again they gradually raise above the rest. Hence, unless they are kept in their own channels by human agency, such rivers are continually changing their course.

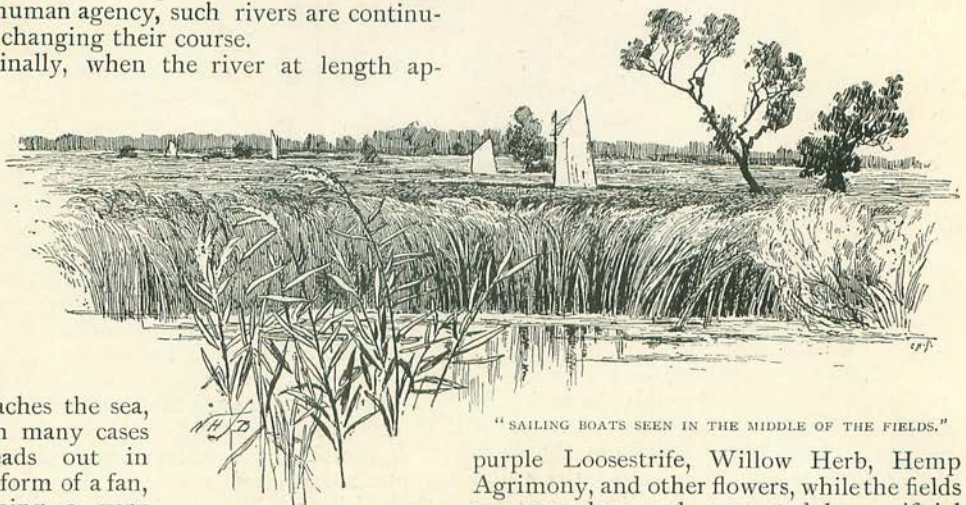
Finally, when the river at length ap-

proaches the sea, they tend, on the contrary, to raise their beds by depositing sand and mud brought down from higher levels. Hence, in the lowest part of

to other rivers. This is due to the same cause, and resembles, except in size, the comparatively minute cones of mountain streams.

The estuary of the Thames is swept by the tides, and the deposits of the river carried away to sea as fast as they are brought down. At the mouths of the Po, on the contrary, the tide is very small; at those of the Mississippi it never surpasses a yard, and even at the mouth of the Ganges it does not generally rise more than ten feet.

In flat countries the habits of rivers are very different. For instance, in parts of Norfolk there are many small lakes or "broads" in a network of rivers—the Bure, the Yare, the Ant, the Waveney, &c., which do not rush on with the haste of many rivers or the stately flow of others, which steadily set themselves to reach the sea, but rather seem like rivers wandering in the meadows on a holiday. They have often no natural banks, but are bounded by dense growths of tall grasses, Bulrushes, Reeds, and Sedges, interspersed with the spires of the



"SAILING BOATS SEEN IN THE MIDDLE OF THE FIELDS."

proaches the sea, it in many cases spreads out in the form of a fan, forming a very flat cone or "delta," as it is called from the Greek capital  $\Delta$ , a name first applied to that of the Nile, and afterwards extended

purple Loosestrife, Willow Herb, Hemp Agrimony, and other flowers, while the fields are very low and protected by artificial dykes, so that the red cattle seem to be browsing below the level of the water; and, as the rivers take most unexpected turns,



the sailing boats often seem as if they were in the middle of the fields.

At present these rivers are restrained in their courses by banks. When left free they are continually changing their beds; and their courses, at first sight, seem to follow no rule, but—as it is termed from a celebrated river of Asia Minor—they seem to “Meander” along without aim or object, though, in fact, they follow very definite laws.

For a considerable part of its course the curves of the Mississippi are so regular that they are said to have been used by the Indians as a measure of distance.

If the country is flat, a river gradually raises the level on each side; the water which overflows during floods, being retarded by trees, bushes, sedges, and a thousand other obstacles, gradually deposits the solid matter which it contains, and, thus raising the surface, becomes at length suspended, as it were, above the general level. When this elevation has reached a certain point, the river, during some flood, overflows and cuts through its banks, and, deserting its old bed, takes a new course along the lowest accessible level. This, then, it gradually fills up, and so on, coming back from time to time if permitted, after a long cycle of years, to its first course.

The most celebrated floods are those of the Nile. The river commences to rise towards the beginning of July; from August to October it floods all the low lands, and early in November it sinks again. At its greatest height the volume of water sometimes reaches twenty times that when it is lowest, and yet, perhaps, not a drop of rain

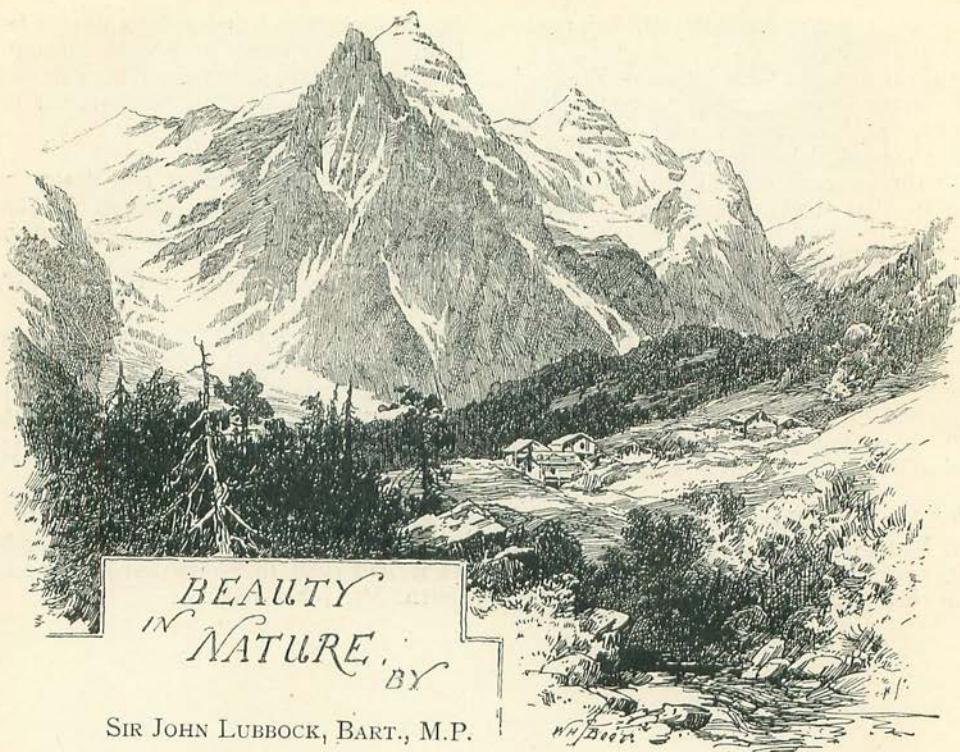
may have fallen. Though we now know that this annual variation is due to the melting of the snow, and the fall of rain on the high lands of Central Africa, still, when we consider that the phenomenon has been repeated annually for thousands of years, it is impossible not to regard it with wonder. In fact, Egypt itself may be said to be the bed of the Nile in flood time.

Some rivers, on the other hand, offer no such periodical difference. The lower Rhone, for instance, below the junction with the Saone, is nearly the same all through the year, and yet we know that the upper portion is greatly derived from the melting of the Swiss snows. In this case, however, while the Rhone itself is on this account highest in summer and lowest in winter, the Saone, on the contrary, is swollen by the winter's rain, and falls during the fine weather of summer. Hence the two just counterbalance one another.

Periodical differences are, of course, comparatively easy to deal with. It is very different with floods due to irregular rainfall. Here, also, however, the mere quantity of rain is by no means the only matter to be considered. For instance, a heavy rain in the watershed in the Seine, unless very prolonged, causes less difference in the flow of the river, say at Paris, than might at first have been expected, because the height of the flood in the nearer affluents has passed down the river before that from the more distant ones has arrived. The highest floods are when the rain in the districts drained by the various affluents happen to be so timed that the different floods coincide in their arrival at Paris.







SIR JOHN LUBBOCK, BART., M.P.

#### IV.—MOUNTAINS.

**T**HE Alps are to many an inexhaustible source of joy and peace, of health, and even of life. We have gone to them jaded and worn, feeling, perhaps, without any external cause, anxious and out of spirits, and have returned full of health and strength and energy. Among the mountains, Nature herself seems freer and happier, brighter and purer than elsewhere. The rush of the rivers and the repose of the lakes, the pure snowfields and majestic glaciers, the fresh air, the mysterious summits of the mountains, the blue haze of the distance, the morning tints and the evening glow, the beauty of the sky and the grandeur of the storm, have all refreshed and delighted us time after time, and their memories can never fade away.

Even now, as I write, comes back to me a bright vision of some Swiss valley; blue sky above, glittering snow, bare grey rock, dark pines here and there, mixed with bright green larches, then patches of smooth Alp, interspersed with clumps of trees and dotted with brown chalets; then below them rock again, and wood, but this time

with more deciduous trees, and then the valley itself, with emerald meadows, interspersed with alder copses threaded together by a silver stream; and I almost fancy I can hear the delicious murmur of the rushing water. The endless variety and yet the sense of repose and power, the dignity of age, the energy of youth, the play of colour, the beauty of form, the mystery of their origin—all combine to invest mountains with a solemn beauty.

Another great charm of mountain districts is the richness of colour. "Consider,\* first, the difference produced in the whole tone of landscape colour by the introduction of purple, violet, and deep ultramarine blue, which we owe to mountains. In an ordinary lowland landscape we have the blue of the sky; the green of the grass, which I will suppose (and this is an unnecessary concession to the lowlands) entirely fresh and bright; the green of trees; and certain elements of purple, far more rich and beautiful than we generally should think, in their bark and shadows (bare hedges and thickets, or tops of trees, in

\* Ruskin.



subdued afternoon sunshine, are nearly perfect purple and of an exquisite tone), as well as in ploughed fields and dark ground in general. But among mountains, in addition to all this, large unbroken spaces of pure violet and purple are introduced in their distances; and even near, by films of cloud passing over the darkness of ravines or forests, blues are produced of the most subtle tenderness, these azures and purples passing into rose colour of otherwise wholly unattainable delicacy among the upper summits, the blue of the sky being at the same time purer and deeper than in the plains. Nay, in some sense, a person who has never seen the rose colour of the rays of dawn crossing a blue mountain twelve or fifteen miles away, can hardly be said to know what tenderness in colour means at all. Bright tenderness he may, indeed, see in the sky or in a flower, but this grave tenderness of the far-away hill-purples, he cannot conceive."

Tyndall, speaking of the scene from the summit of the little Scheideck,\* says:—"The upper air exhibited a commotion which we did not experience; clouds were wildly driven against the flanks of the Eiger, the Jungfrau thundered behind, while in front of us a magnificent rainbow, fixing one of its arms in the valley of Grindelwald, and throwing the other right over the crown of the Wetterhorn, clasped the mountain in its embrace. Through jagged apertures in the clouds floods of golden light were poured down the sides of the mountain. On the slopes were innumerable châteaux, glistening in the sun-

beams, herds browsing peacefully and shaking their mellow bells; while the blackness of the pine trees, crowded into woods, or scattered in pleasant clusters over Alp and valley, contrasted forcibly with the lively green of the fields."

These were the summer scenes, but the autumn and winter again have a grandeur and beauty of their own.

"Autumn is dark on the mountains; grey mist rests on the hills. The whirlwind is heard on the heath. Dark rolls the river through the narrow plain. The leaves twirl round with the wind, and strew the grave of the dead."\*

Even bad weather often only adds to the beauty and grandeur of mountains. When the lower parts are hidden, and the peaks stand out above the clouds, they look much loftier than if the whole mountain side is visible. The gloom lends a weirdness and mystery, while flying clouds give it additional variety.

Rain, moreover, adds vividness to the colouring. The leaves and grass become a brighter green. "Every sunburnt rock glows into an agate," and when fine weather returns the new snow gives intense brilliance to the scene, and invests the

woods especially with the beauty of fairyland. How often in Alpine districts have I longed "for the wings of a dove" more thoroughly to enjoy and more completely to explore the mysteries and recesses of the mountains. The mind, however, can go, even if the body must remain behind.

Each hour of the day has a beauty of its own. The mornings and evenings, again,



"GREY MIST RESTS ON THE HILLS."

\* "The Glaciers of the Alps."

\* Ossian.



glow with different and even richer tints. The cloud effects in mountain districts are brighter and more varied than in flatter regions. The morning and evening tints are seen to the greatest advantage, and clouds floating high in the heavens sometimes glitter with the most exquisite iridescent hues,

"That blush and glow  
Like angels' wings."\*

On low ground one may indeed be in the clouds, but not above them. But as we look down from mountains and see them floating far below us we almost seem as if we were looking down on earth from one of the heavenly bodies.

Not even in the Alps is there anything more beautiful than the "after glow" which lights up the snow and ice with a rosy tint for some minutes after the sun has set. Long after the lower slopes are already in the shade, the summit of Mont Blanc, for instance, is transfigured by the light of the setting sun glowing on the snow. It seems almost like the light from another world, and vanishes as suddenly and mysteriously as it comes.

As we look up from the valleys the mountain peaks seem like separate pinnacles

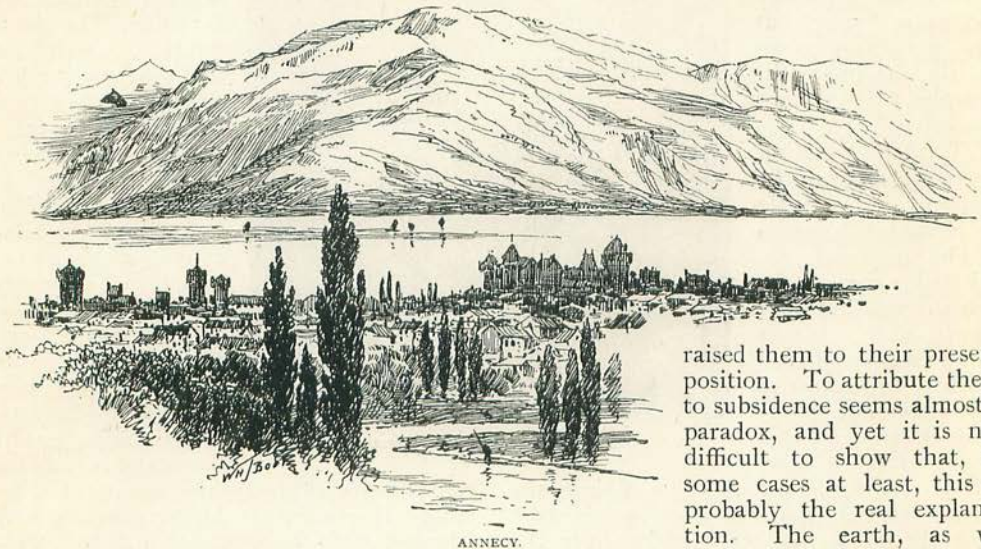
Piz Languard, we see that in many cases they must have once formed a dome, or even a tableland, out of which the valleys have been carved. Geologists tell us that the Alps were once, at least, twice as high as they are now, and the highest peaks are those which have suffered least from the wear and tear of time.

Geography, moreover, acquires a new interest when we once realise that mountains are no mere accidents, but that for every mountain chain, for every peak and valley, there is a cause and an explanation.

We used to speak of the everlasting hills, and are only beginning to realise the vast and many changes which our earth has undergone

"There rolls the deep where grew the tree ;  
O Earth, what changes hast thou seen !  
There, where the long street roars, hath been  
The stillness of the central sea.  
The hills are shadows, and they flow  
From form to form, and nothing stands :  
They melt like mist, the solid lands,  
Like clouds they shape themselves and go."\*

The elevation of mountain chains was at first, naturally enough, attributed to direct upward pressure from below. It was supposed that forces acting from underneath



ANNECY.

projecting far above the general level. This, however is a very erroneous impression, and when we examine the view from the top of any of the higher mountains, or even from one of very moderate elevation, if well placed, such as, say, the well-known

raised them to their present position. To attribute them to subsidence seems almost a paradox, and yet it is not difficult to show that, in some cases at least, this is probably the real explanation. The earth, as we know, has been gradually cooling, and as it contracted in doing so the strata would necessarily be thrown into folds. When an apple dries and shrivels in winter the surface, as we all know, becomes covered with ridges. Or, again, if we were to place some sheets of paper

\* Bullar's "Azores."

\* Tennyson.



between two weights on a table, and then bring the weights nearer together, the paper would be crumpled up.\*

The suggestion of compression is consistent with the main features of Swiss geography. The principal axis follows a curved line from the Maritime Alps towards the north-east by Mount Blanc, Mount Rosa, and St. Gothard, to the mountains overlooking the Engadine. The geographical strata follow the same direction. North of a line running through Chambéry, Yver, Neufchatel, Solothurn, and Olten to Waldshut on the Rhine are Jurassic strata; between that line and a second nearly parallel, and running through Annecy, Vevey, Lucerne, Wesen, Appenzell, and Bregenz on the Lake of Constance, is the lowland occupied by newer Tertiary strata; between this second line and another passing through Albertville, Saint Maurice, Leuk, Meiringen, and Altdorf lie a more or less broken band of older Tertiary strata; south of which again is a cretaceous zone, and then again another of Jurassic age.

The tops of the Swiss mountains stand—probably have ever stood—above the range of ice, and hence their bold peaks. In Scotland, on the contrary, and still more in Norway, the sheet of ice which once, as is

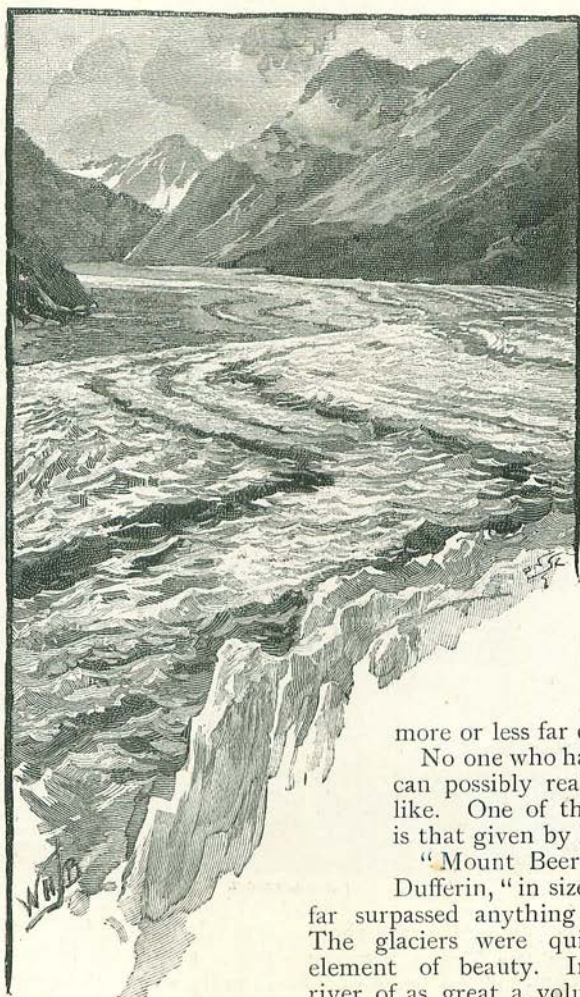
the case with Greenland now, spread over the whole country, has shorn off the summits, and reduced them almost to gigantic bosses; while in Wales the same causes, and still more the resistless action of time—for the Welsh hills are many times older than the mountains of Switzerland—has ground down the once lofty summits, and reduced them to mere stumps, such as, if the present forces are left to work out their results, the Swiss mountains will be thousands, or rather tens of thousands, of years hence.

The "snow-line" in Switzerland is generally given as being between 8,500 and 9,000 feet. Above this level, the snow or "neve" gradually accumulates until it forms "glaciers"—solid rivers of ice, which descend

more or less far down the valleys.

No one who has not seen a glacier can possibly realise what they are like. One of the best descriptions is that given by Lord Dufferin.

"Mount Beerenberg," says Lord Dufferin, "in size, colour, and effect, far surpassed anything I had anticipated. The glaciers were quite an unexpected element of beauty. Imagine a mighty river of as great a volume as the Thames started down the side of a mountain, bursting over every impediment, whirled into a thousand eddies, tumbling and raging on from ledge to ledge in quivering cataracts of foam—then suddenly struck rigid by a power so instantaneous in its action that even the froth and fleeting wreaths of spray have stiffened to the immutability of sculpture. Unless you had seen it, it would be almost impossible to conceive the strangeness of the contrast between the actual tranquillity of these silent crystal rivers and the violent descend-



"A GLACIER."

\* Adapted from Bull's paper on "The Formation of Alpine Valleys and Lakes," Lond. and Ed. Phil. Soc. Trans., 1863, p. 96.



ing energy impressed upon their exterior. You must remember, too, all this is upon a scale of such prodigious magnitude, that when we succeeded subsequently in approaching the spot—where, with a leap like that of Niagara, one of these glaciers plunges down into the sea—the eye, no longer able to take in its fluvial character, was content to rest in simple astonishment at what then appeared a lucent precipice of grey-green ice, rising to the height of several hundred feet above the masts of the vessel." \*

The most magnificent glacier tracks in the Alps are, in Ruskin's opinion, those on the rocks of the great angle opposite

upper end, and a steep side below, clearly showing the direction of the great ice flow.

Many of the upper Swiss valleys contain lakes, as, for instance, that of the Upper Rhone the Lake of Geneva, of the Reuss the Lake of Lucerne, of the Rhine that of Constance. These lakes are generally very deep.

Among the Swiss mountains themselves, each has its special character. Tyndall thus describes a view in the Alps, certainly one of the most beautiful—that, namely from the summit of the *Ægischhorn* :—

"Skies and summits are to-day without a cloud, and no mist or turbidity interferes with the sharpness of the outlines. Jung-



LAKE LUCERNE.

Martigny ; the most interesting are those above the channel of the Trient between Valorsine and the valley of the Rhone.

In Great Britain, I know no better illustration of ice action than is to be seen on the road leading down from Glen Quoich to Loch Hourne, one of the most striking examples of desolate and savage scenery in Scotland, so that its name in Celtic is said to mean the Lake of Hell. All along the roadside are smoothed and polished hummocks of rock, most of them deeply furrowed with approximately parallel striæ, presenting a gentle slope on the

frau, Monk, Eiger, Truberg, clifty Strahlgrat, stately lady-like Aletschhorn, all grandly pierce the empyrean. Like a Saul of mountains, the Finisterraarhorn overtops all his neighbours ; then we have the Oberaarhorn, with the river glacier of Viesch rolling from his shoulders. Below is the Marjelin See, with its crystal precipices and its floating icebergs, snowy white, sailing on a blue-green sea. Beyond, is the range which divides the Valais from Italy. Sweeping round, the vision meets an aggregate of peaks which look, as fledglings to their mother, towards the mighty Dom. Then come the repellent crags of Mont Cervin ; the ideal of moral savagery, of

\* "Letters from High Latitudes."



wild, untamable ferocity, mingling involuntarily with our contemplation of the gloomy pile. Next comes an object scarcely less grand, conveying, it may be, even a deeper impression of majesty and might than the Matterhorn itself—the Weisshorn, perhaps the most splendid object in the Alps. But beauty is associated with its force, and we think of it, not as cruel, but as grand and strong. Further to the right the great Combin lifts up his bare head; other peaks crowd around him; while at the extremity of the curve round which our gaze has swept rises the sovran crown of Mont Blanc. And now, as day sinks, scrolls of pearly clouds draw themselves around the mountain crests, being wafted from them into the distant air. They are without colour of any kind; still, by grace of form, and as the embodiment of lustrous light and most tender shade, their beauty is not to be described."\*

### VOLCANOES.

Volcanoes belong to a totally different series of mountains.

It is practically impossible to number the volcanoes on our earth. Humboldt enumerates 223, which Keith Johnston raised to nearly 300. Some, no doubt, are always active, but in the majority the eruptions are occasional, and, though some are undoubtedly now extinct, it is impossible to distinguish those which are only in repose from those whose day of activity is over. Then, again, the question would arise, which should be regarded as mere subsidiary cones, and which are separate volcanoes. The slopes of Etna

present more than 700 small cones, and on Hawaii there are several thousands.

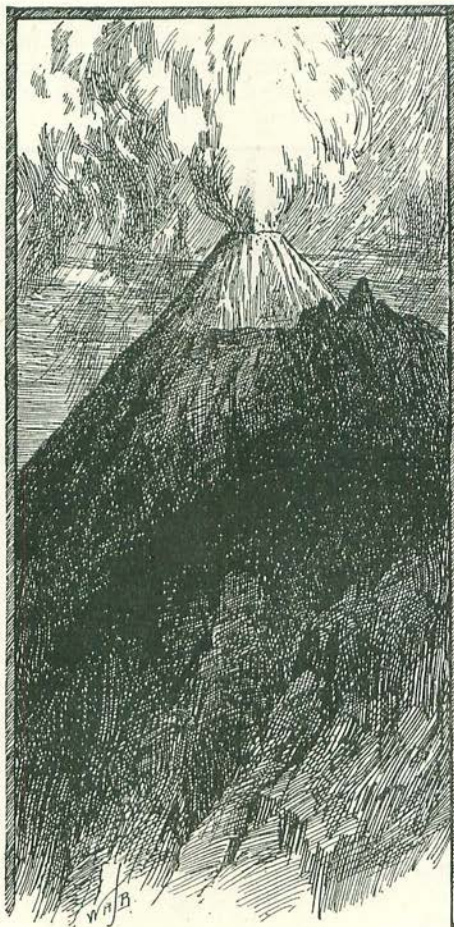
In fact, most of the very lofty volcanoes present more or less lateral cones.

The mountain, commencing as a chasm, gradually builds itself up into a cone, often of the most beautiful regularity, such as the gigantic peaks of Chimborazo, Cotopaxi, and Fusi-yama, and hence it is that the crater is so often at, or very near, the summit.

Perhaps no spectacle in Nature is more

imposing or magnificent than a volcano in activity. It has been my good fortune to have stood at the edge of the crater of Vesuvius during an eruption; to have watched the lava seething below, while enormous stones were shot up high into the air. Such a spectacle can never be forgotten.

The most imposing crater in the world is probably that of Kilawea, at a height of 1,200 metres on the side of Mouna Loa, in the island of Hawaii. It has a diameter of 2,500 metres, and is elliptic in outline, with a longer axis of 5 kilometres, and a circumference of 11. The interior is a great lake of lava, the level of which is constantly changing. Generally it stands about 250 metres below the edge, and the depth is about 450 metres. The heat is intense, and, especially at night, when the clouds are coloured scarlet by the reflection



COTOPAXI.

from the molten lava, the effect is said to be magnificent. Gradually the lava mounts in the crater until it either bursts through the side, or runs over the edge, after which the crater remains empty, sometimes for years. A lava stream flows down the slope of the mountain like a burning river, at first rapidly, but, as it cools, scorix gradually form, and at length the molten matter covers itself

\* "Mountaineering in 1861."



completely, both above and at the sides, with a solid crust, within which, as in a tunnel, it continues to flow slowly as long as it is supplied from the source, here and there breaking through the crust which, as continually, reforms in front. Thus the terrible, inexorable river of fire slowly descends, destroying everything in its course.

The stone, ashes, and mud ejected during eruptions are even more destructive than the rivers of lava. In 1851 Tomboro, a volcano on the island of Sumbava, cost more lives than fell in the battle of Waterloo. The earthquake of Lisbon in 1755 destroyed 60,000 persons. During the earthquake of Riobamba and the mud eruption of Tunjuragua, and again in that of Krakatoa, it is estimated that the number who perished was between 30,000 and 40,000. At the earthquake of Antioch in 526, no less than 200,000 persons are said to have lost their lives.

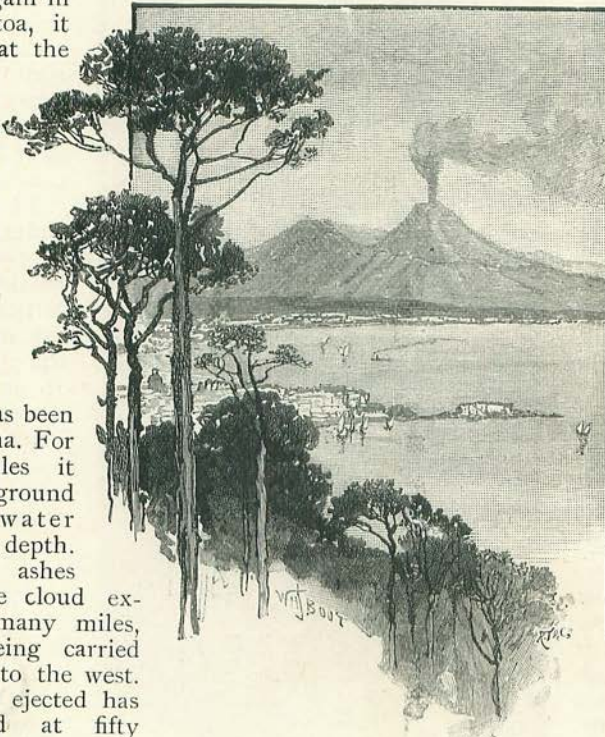
Perhaps the most destructive eruption of modern times has been that on Cosequina. For twenty-five miles it covered the ground with muddy water sixteen feet in depth. The dust and ashes formed a dense cloud extending over many miles, some of it being carried twenty degrees to the west. The total mass ejected has been estimated at fifty milliards of square metres.

Though long extinct, volcanoes once existed in the English Isles: Arthur's Seat, near Edinburgh, for instance, appears to be the funnel of a small volcano, belonging to the carboniferous period.

The summit of the mountain is often entirely blown away. Between my two first visits to Vesuvius 200 feet of the mountain had been thus blown up. Vesuvius itself stands in the ancient crater, part of which still remains and is now

known as Somma, the greater part having disappeared in the great eruption of 79, when the mountain, waking from its long sleep, destroyed Herculaneum and Pompeii.

As regards the origin of volcanoes there have been two main theories. Impressed by the magnitude and grandeur of the phenomena, enhanced as they are by their destructive character, many have been disposed to regard the craters of volcanoes as gigantic chimneys, passing right through the solid crust of the globe, and communicating with the central fire. Recent researches, however, have indicated that, grand and imposing as they are, volcanoes must yet be regarded as due mainly to local and superficial causes.



VESUVIUS AND SOMMA.

A glance at the map shows that volcanoes are almost always situated on, or near, the sea coast. From the interiors of continents they are entirely wanting. The number of active volcanoes in the Andes contrasted with their absence in the Alps and Urals, the Himalayas and Central Asian chains, is very striking. Indeed, the Pacific Ocean is encircled, as Ritter pointed out, by a ring of fire. It seems probable that the friction and pressure which have led to the formation of mountain

chains had given rise to areas of excessively high temperature, and that where water has access to such regions volcanoes are produced by the explosions.

Yet though we cannot connect volcanic action with the central heat of the earth, but must regard it as a minor and local manifestation of force, volcanoes still remain among the grandest, most awful, and at the same time most magnificent spectacles which the earth can afford.