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PEAKS AND VALLEYS  
OF THE  
ALPS

FROM WATER-COLOUR DRAWINGS

BY

ELIJAH WALTON.

CHROMO-LITHOGRAPHED BY J. H. LOWES.

WITH DESCRIPTIVE TEXT

BY

REV<sup>D</sup> T. G. BONNEY M.A., F.G.S.

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LONDON.

SAMPSON LOW, SON AND MARSTON.

CROWN BUILDINGS, FLEET STREET.





THE  
PEAKS AND VALLEYS  
OF  
THE ALPS

BY

ELIJAH WALTON,

AUTHOR OF "THE CAMEL: ITS ANATOMY, PROPORTIONS, AND PAGES."

WITH DESCRIPTIVE TEXT

BY

T. G. BONNEY, M.A., F.G.S.,

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## INTRODUCTION.

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THE Series of Drawings contained in this volume might more strictly be entitled Peaks and Valleys of the *Western Alps*; for all the places which it illustrates are situated in that orographical district which is comprised in the first volume of the *Alpine Guide*. This restriction, which is, I believe, quite unintentional, in no way imposes a limited choice of subjects; for almost every kind of scenery which can be found in the other districts is equally well represented in some part or other of the Western Alps. Herein, without reckoning the Maritime region, we have the rich glens which radiate from around the Viso, the deep combes and wild crags of Dauphiné, the Graians—varying from the dreariest sterility to the utmost luxuriance, the pastoral beauty of the limestone border-land, and finally, the vast snow-fields and glaciers of the Pennino chain, from among which rise the eight highest peaks in Central Europe. In these, every kind of rock which occurs in other parts of the Alps, with the exception of dolomite, is well developed; and this fact alone, apart from the wide range of temperature from arctic snows to almost tropical heat, is sufficient to secure the utmost variety of scenery; for the forms, as well as the colours of mountains, are greatly influenced by the materials of which they are composed.

These materials are usually divided geologically into igneous, metamorphic, and sedimentary rocks; or, to adopt Mr. Ruskin's classification, more convenient for artistic purposes and less entangled with special scientific theories—into compact and slaty crystallines, and compact and slaty coherent. The first of these four classes includes granite and its varieties, basalt, trap, and other rocks which are usually supposed to have cooled down from a state of fusion; the second, gneiss, with mica, chlorite, talc, and other slates, with the property of foliation or cleavage—that is, rocks which split in directions not determined by the original bedding, but by some after-arrangement of their particles; the third, limestone and sandstone; and the fourth, ordinary shales and slates, which split along their planes of bedding, and are simply indurated layers of mud.

Now, without entering into a minute examination of the various theories which have been advanced to account for the present configuration of the Alpine chain, a very slight inspection will shew that it is mainly due to two opposing forces—upheaval and denudation. By some means or other, whether by the expansion of melting matter deep below the surface, by a change in the axis of rotation of the earth, or by some other agency, large tracts have been lifted up many thousands of feet above their former level; have been compressed, broken, folded, and often chemically altered in the process; at the same time have been subjected, and, perhaps, for long after the first forces ceased to operate, to the eroding action of storm and frost, stream and, possibly, wave. However much influence we may allow to these subterranean forces in producing cracks and rifts, in rending rocks asunder, and in upheaving one portion far above the other—and to this some would concede very little—we cannot deny that the great Alpine peaks are but the fragments of what once has been, mere relics of masonry and ruined bastions of a once far mightier fortress. Millions after millions of cubic yards of solid rock must have been torn away, broken into gravel or ground to dust, and then spread over many a league of France, Italy, and Switzerland. The process of degradation is, indeed, still going on, though possibly not on so great a scale as formerly. The mountains still crumble away, the torrents rush along turbid with fine detritus, and are slowly filling up the Alpine valleys:—for example, the

level plains, often so wearisome, by the banks of the Rhone, between Villeneuve and Brieg, are nothing but vast beds of silt which has been borne down from the surrounding mountains by that river and its tributary streams. It is therefore clear that the form of a peak is greatly influenced by the character of its materials and their power of resisting the denuding agents to which they are exposed. The exact nature of these in past time one need not here investigate; for myself, I believe that the sea has played a much larger part in the work than many are inclined to admit; it is, however, enough to remember that to denudation in some form or other the sculpture of the Alpine cliffs is mainly due.

If we examine the forms which in the Western Alps result from the employment of these different materials, we find that true granite is comparatively rare, and generally, as might be expected, is overlaid by other rocks; there are, however, a few small exposed tracts of it; as, for example, on the western shore of the Lago Maggiore, in which are the celebrated quarries of Fariolo. Here the hills are generally rounded and "bossy," breaking now and then into cliffs, the profiles of which are also somewhat curved, and their faces often riven by huge joints. Occasionally the turf-slopes are interrupted by a rough ridge, which from a distance resembles a ruined wall of Cyclopean masonry, or are crowned by a cairn of huge blocks; but the prevailing features of the scenery impress us with the idea that the mountains have rather crumbled than split away into their present form. One of the varieties of granite, called syenite, occurs in the eastern part of the Mont Blanc range, and its influence on the scenery may be traced in the sketch of the Glacier de Trient (Plate 21). When, however, we come to gneiss, a great change is at once evident in the aspect of the country, although sometimes the two rocks can scarcely be distinguished in hand specimens. For example, the gneiss of the Pelvoux district, though in places it is only to be distinguished by an occasional seam of tale, weathers into some of the sharpest and most jagged pinnacles that I have ever seen. The ridges of the Col de la Cavale, in Dauphiné and the Trift Joch near Zermatt are excellent examples of the wildest forms of gneissic scenery; the one exhibiting it in its nearest approach to granite, the other as an unmistakably foliated rock. True gneiss and mica-schist are the materials which compose most of the highest peaks in Europe. They also often pass one into another without any very definite boundary, but, so far as I know, the schist usually overlies the gneiss, and is thus more frequently found forming the aetnal mountain summit. In the district of Mont Blanc they are very largely developed, and all the monarch's attendant *aiguilles*, with the splintered ridges which enclose the great snow-fields in the heart of the chain, consist, I believe, of these two rocks. They also abound in the rarely visited region about Mont Collon, and again in the neighbourhood of Zermatt; for instance, the Höchste Spitze of Monte Rosa, the highest uncovered crag in Europe, is a dark grey mica-schist with occasional veins of quartz. Examples of the scenery of these rocks will be found in Plates 2, 5, 17, 18, 19. Chlorite-slate is also frequently interbedded with them; and, though comparatively rare in the Western Pennines, is largely developed in the Eastern, as well as in the Graian, Tarentaise, and Viso districts. Indeed, many of the summits which are especially conspicuous for their boldness of outline are almost wholly composed of it. It is not easy to account for this fact, but it is certainly remarkable, that of the five great mountains which, in the Western Alps, approximate most nearly to true pyramidal peaks, the Viso, the Pointe des Écrins, the Grivola, the Matterhorn, and the Weisshorn, four—all but the last-named—are principally composed of chlorite-slates. Plates 2, 3, 6, 17, 18, are good examples of the outlines produced by the presence of this rock; but one of them (Plate 18) will also shew how exceedingly rare the popular ideal of a mountain, viz., a four or five-sided pyramid culminating in a sharp spike, actually is; for in three of these five—the Viso, the Grivola, and the Matterhorn—the summits in reality are not cones but tolerably level, narrow ridges.

The slaty coherents and limestones occur on both sides of the great crystalline stripe which, with a few breaks, extends from the Pelvoux group to the eastern extremity of the Pennines; but are more sparingly developed on the south-eastern than on the north-western flank, where a broad band of them runs like a fringe in the same general direction with the metamorphic zone. They occupy the major portion of the triangular area between Bex, Geneva, and Grenoble, and crop up at intervals among the softer

sandstones to the west of the line passing through Grenoble, Chambéry, Annecy, and Bonneville. These sandstones are almost, if not wholly, wanting on the south-eastern flanks of the Alps, and, as they are comparatively recent in a geological sense, and generally soft and friable, they never occur among the higher summits, or rise into bold and striking peaks. For this reason no example of their scenery, though in its way it is often very lovely, has been included in this volume. The limestone ranges, though less striking in the outlines of their crests than the slaty crystallines, and not reaching so great an elevation in vertical height, are not at all inferior in the grandeur of their cliffs, which frequently extend for miles along the side of a valley in vast terraces, whose precipitous walls are often absolutely inaccessible. The gorge of the Guil, the region of the Grande Chartreuse, and the neighbourhood of Sixt (Plates 14, 15), are excellent examples of this kind of scenery, whose beauty is enhanced by the rich pastures and forests which clothe the lower declivities. Among the stony deserts of the crystalline rocks, the struggle for life is often severe; the scanty herbage and stunted trees tell how much Nature has been thwarted in her efforts to make the waste places blossom; but among the more readily decomposing banks of *débris* under the limestone precipices existence seems to be a joy; the alps slope down in terraces of richest green; the forests descend in long curving sweeps to the level meadows by the river-side; nay, the pines boldly thrust their roots into the crannies of the cliffs, and so mount up, spire above spire, till they stand out as a dusky fringe against the blue sky, thousands of feet overhead.

The slaty coherents are, as a rule, more easily affected than the limestones by the destructive agents to which they are exposed, and in proportion as they prevail over the compacter rocks, so does the scenery become more wild and ruinous; an example of this will be found on Plate 13. Where, however, they are largely developed, the mountains often become singularly dreary and desolate; their ridges not being composed of a material hard and tenacious enough to weather into bold forms, have a worn ragged outline, which is very paltry when compared with the jagged teeth and pinnacles of the slaty crystallines; and the slopes below are covered with a dull black splintery shale, which, when decomposed, changes rapidly from a burning dust in the sunshine to a slimy mud in the rain, and is therefore wholly unfavourable to vegetable life. Hence, places like the neighbourhood of the Col d'Anserne (Plate 11) are in reality far more desolate than the most barren slopes of fallen blocks below the hardest crystalline precipices. These, though they crumble away never so slowly, yield at last a wholesome soil; and it is only now and then, when we come upon a bed consisting chiefly of mica, that we are reminded of the shale districts; where, even if a plant has at last succeeded in taking root in some few inches of friendly soil upon a bank of *débris*, it is speedily overwhelmed by a fresh shower of splinters which comes trickling down from above.

Since, then, every rock has its distinctive set of outlines—a truth which even our own country can teach us, for surely the red sandstone hills of Herefordshire differ from the gneiss ridges of Malvern, and the chalk downs of Sussex from the limestone bosses of the Isle of Man,—might we not expect that this would be one of the points to which painters of mountain scenery would pay especial attention? On the contrary, there are few facts that are more frequently or more entirely ignored. In Nature, we can often pronounce with certainty, even from a distance of many miles, upon the character of the rocks which compose a range of peaks; in Art, we often not only are unable to offer any opinion, but also are wholly at a loss to conjecture of what possible rock they can be constituted. We should deem it disgraceful if a figure-painter were ignorant of the simpler facts of anatomy, and only conceived the muscles to be certain rather graceful, but wholly purposeless swellings in various parts of the body: is it less disgraceful for the landscape painter to be perfectly unconscious of the most elementary facts of mountain structure, and to overlook Nature's general conformity to certain laws in the totality, and, at the same time, her endless variety in detail? He need not, perhaps, be very clear as to the exact definitions of such terms as joints, cleavage, foliation, stratification, and the like; nor be able to distinguish accurately protogine from syenite, or sandstone from quartzite—though it will be all the better if he can; but he is bound to feel that there are distinctions in the materials of which the mountains are built, and that each kind of rock, whatsoever its

name may be, has its own definite class of outlines as well as its peculiar texture and colour. To use these indifferently, is in reality as gross a violation of natural truth as if he were habitually to paint Circassians with woolly hair and blubber lips, or negroes with love-locks and Roman noses. Again, it is surely not too much to ask that, sinking these finer distinctions, there should be some approach to general truth in the contours of peaks, and that slopes of  $30^\circ$  should not be represented as if their inclination were  $45^\circ$ , nor slopes of  $60^\circ$  as vertical precipices. This, however, is sometimes defended as necessary "idealization," and supposed to add to the dignity of the mountains; idealization indeed it is—but false, not true; and, as a general rule, simple truth is far grander than any fraud. Let any one trace from a photograph the outline of the view from the Flegère and then contrast it with one of the lithographs which are (or used to be) vended at Chamouni; or, what will be less trouble, compare the view of the Mer de Glace, looking up to the Grandes Jorasses and the Aiguille de Chamois in Tyndall's "Glaciers of the Alps," with the rendering of the same scene by Bartlett in Beattie's "Switzerland" (vol. I. page 19. Herein I may venture to inform the reader that the two rickety spires on the left hand, which the first gale will infallibly blow down—and they will not do much mischief—are the Aiguilles Verte and du Dru). Though in the former of these two the mountains have suffered somewhat in delicacy and fine variety of outline, from the difficulties of the material on which the engraving is made, still their sturdy reality is infinitely grander than the flimsy and flaky ridges of the latter, which look as if they were constructed of laths, and would crack under the tread of the passing chamois. Or to take another example; from a number of views of the Matterhorn now before me, I select one (from a sketch by an R.A.) and compare it with a photograph. By making corresponding diagrams of the leading lines of the pyramid, I find that in the drawing the vertical angles of the triangles thus constructed are  $42^\circ$  and  $9^\circ$ , and the height to the base is as 136 to 100; while in the photograph the angles are respectively  $50^\circ$  and  $12^\circ$ , and the proportion is as 122 to 100. The effect of this difference, enhanced by a general wrong rendering of the leading contours—viz., substituting concave for convex lines—is to rob the peak of all its grandeur, and present it as a feeble spike which must soon totter to an ignoble fall.

In reply to this it may be urged, that photographs of mountains are rarely satisfactory, and generally make them appear lower and far less impressive than they really are. The true reason, however, of this fault is that form is not the only property which conveys the idea of mountain dignity; and the camera, when considered as a substitute for the optic nerve, has its deficiencies. The photograph, from various causes, is ill able to render the finer gradations of distance, and therefore all points which lie in planes perpendicular to the line of vision and not very far apart, are as it were projected into one plane, and so an 'elevation,' rather than a picture of the mountain, is produced. Therefore the stereograph, in which this defect is amended, is much more satisfactory than the ordinary photograph. Again, in nature the eye is only able to fasten itself upon and receive vivid impressions from a very limited area. Thus, when we are looking at a mountain view, we can only concentrate our attention upon the most important part of it, and the rest of the image fades gradually away; actually, because of the construction of the eye, and apparently, because the brain is unable to take cognisance of the outer parts of it. But, in the ordinary photograph, the eye is commonly able to comprehend rather more than would be possible in nature, and is, therefore, not sufficiently restricted to the principal object. I might go on further to indicate other causes for the failure of photographs, but this will be sufficient for my present purpose.

This strict attention to truthfulness in form and character, in my opinion, is, above all others, the distinguishing excellence of Mr. Walton's Alpine drawings. Every stroke of his pencil means something, and means right. I venture to assert this boldly, because I know, perhaps better than most men, the scenery among which he has chiefly worked, and in addition to this, have often been able to compare his sketches with photographs and with other (non-artistic) drawings which I knew to be reasonably truthful. These tests have always produced satisfactory results, and I have laid particular stress upon his conscientious attention to this truthfulness, because the majority of Alpine artists in the present day seem to be wholly ignorant of its importance, and many of the critics who (in the public journals) pronounce upon their labours,



often run absolutely wild in calling good evil, and evil good. Among the numerous pictures of Alpine scenery which I carefully examined during the past summer in the two Water-Colour Societies' Exhibitions, (in the Royal Academy, the Alps were only represented by an amateur, whose brilliant success in his own profession disarms criticism), there was hardly one which did not exhibit the grossest ignorance of nature's laws, and the utmost blindness to the commonest facts of mountain structure. For all this, many of these performances were extolled to the skies, without any censure of their defects. It is also painfully obvious that when once an artist quits the beaten track of conventionalism, the majority of critics do not know what to make of him; hence their remarks are amusingly vague and contradictory. (A volume of extracts from the notices of Mr. Macallum's pictures, lying in his exhibition-room, was a rich treat.) A painter will therefore quickly find out that most of these anonymous critics, who sit in judgment on his works with all the solemnity of a Minos or a Daniel, are but blind guides; and if he be a wise man, and anxious to preserve that serenity of temper which is most needful for rightly conceiving and surely executing his designs, will never read a word of the so-called Art Notices.

The scenery of the Alps cannot be appreciated and all their varied phenomena learnt in a hasty tour of a few days or by a mere cursory inspection. Close study on the spot is required, and that, too, of a kind which many would not care to undertake. It is not enough for the student to look at them from Rousseau's Island at Geneva, or from the windows of a Chamonix hotel; or even, once in a way, from the Brévent, or the Gorner Grat; but he must live among them, must see the first rays of morning gleam upon their summits, and the last glow of evening fade away from their snows; must watch the storm gathering among their peaks, and that, too, from no safe distance; must see their crags looming through the mists, and mark the endless changes wrought by the wreathing clouds. To learn all this thoroughly, some hardship must be undergone; frequent poor fare, many a night in a hay chalet, and more than one on the mountain side, with the rock for a couch and a knapsack for a pillow. It is a common charge to bring against the few more careful painters of Alpine scenery that their colouring is exaggerated or glaring. For myself, nine visits to the Alps have revealed so many unexpected beauties, that, if an artist shewed himself worthy of confidence by his accurate rendering of outline and structure in peak and glacier, I should hesitate to condemn any of his effects, however surprising they might appear, as impossible or unnatural. There are certainly none in this book which are more "glaring" than what I have sometimes seen. No doubt there are persons who prefer to look at Nature in her every-day dress; this, however, is a matter of taste, and the artist is therefore surely at liberty to follow his own instincts, and to depict her under those aspects which most keenly excite his admiration and love. I also delight to see her painted in royal robes of purple and scarlet: for through my window-frame she shews herself in sober russet clad. Groves and quiet fields are close at hand, not indeed without their own beauties; nay, at times not without golden light glowing in the west, and "awful roses of dawn" flushing in the east; but when the mist hangs low on the fen, and the withered leaves are whirled about by the wintry wind, it is pleasant to change, in imagination, the dykes sluggishly creeping through the meadows for torrents leaping down the mountain slopes; and the leaden clouds for the brighter skies of a Swiss or an Italian summer.

And having said this, I cannot refrain from briefly noticing an assertion which I not uncommonly see made, especially after an accident has happened in the Alps; namely, that they are not worth the trouble and peril incurred in visiting them, because we have more beautiful scenery at home. Herein there is, I think, a double error. The risk in mountain-climbing, if due precautions be taken, is no greater than in any other manly exercise,—bathing, boating, football, and riding, have all claimed their victims among my acquaintances and friends; and I venture to assert that there is no comparison between the scenery of the Alps and that of our own island,—no comparison, in the strict sense of the word, for their beauties belong to classes wholly different in kind and in nature. Our home scenery is often exquisitely lovely: nothing in their way can be more attractive than the undulating banks of the Wye and the broad valley of the Severn, the breezy southern downs, and the fertile midland table-land, the Westmorland lakes and the

Welsh estuaries; or can be richer in colour than the moorlands or hills when glowing in summer with crimson heather or dappled in autumn with the tender pink of blossoming ling and the ruddy gold of withering brake. In all these there is a soothing charm, a sense of peace and dreamy repose, but not of grandeur or of awfulness. The love which they excite, is far more akin to that which is felt for those nearest and dearest in our homes and daily walk through life, than to the solemn reverence for angelic beings, or for Him who once brooded in the cloud on the granite peaks of Sinai, and shook the crags of Horeb with the thunder's roll and the trumpet's sounding long and loud. Moreover, we need not fear, as some have done, that the Alps will spoil us for our quieter English scenery. For myself, I am bound to say that though each year I find my appreciation of them increased, I love and value our home scenery the more on my return because of its entire contrast and essential difference. It is possible to be narrow-minded and one-sided in our love of nature quite as much as in anything else.

In conclusion, one word more must be said about the drawings. It will be seen that there is some difference in their style. The reason of this is, that in order to secure as much variety as possible in the scenery they have been selected from the work of four years. I am sure Mr. Walton will allow me to say that he has improved in that time, and that his later productions shew a more complete mastery over the difficulties of his task than his earlier; all indeed are good, but some are better than others. It is also obvious that the chromolithographs must lose somewhat of the delicacy and feeling of the originals,—must be harder and more mechanical; still I marvel that they have lost so little, and cannot refrain from expressing my admiration at the manner in which Mr. J. H. Lowes (by whom the whole work has been executed) has performed his very difficult task. Let it, however, be remembered that, though the pictures are contained in a book, they are not meant to be looked at like engravings, but as pictures—a distance of about three yards will be the best stand-point for most persons. Perhaps also I ought to apologize for quoting so freely from Mr. Ruskin's works. My excuse must be that no one, whose writings are known to me, understands the Alps better than he, or can describe them in such apt and eloquent words. If his fourth volume of "Modern Painters" were more studied, we should have fewer of those caricatures of Nature which now, under the names of "Scenes in the Alps," too often disfigure our Exhibitions.







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## THE OPENING OF THE VAL DE TIGNES.

THE valley of the Upper Isère, though much more picturesque than that of its tributary, the Arc, is at present far less known to travellers. Although the advantages of the Cénis, as the most direct route from Paris to Turin, will, of course, always divert the great stream of traffic along it, still I have no doubt that, when the carriage-road over the Little St. Bernard is completed, this pass will become a favourite with those to whom fine scenery is a greater attraction than a rapid journey. The country between Moutiers-Tarentaise and Bourg St. Maurice is certainly superior to that in any part of the Arc valley; and the views gained during the ascent and descent of the Little St. Bernard are very much grander than those from the Mont Cénis.

Bourg St. Maurice itself is not at all an unpleasant halting-place for a day or two, as several interesting excursions may be made in the immediate neighbourhood; especially up the stream in the direction of Tignes, a village, which, if it only had a decent inn, would soon become a very favourite haunt of all lovers of Alpine beauty. Besides the road over the Little St. Bernard, the mule-path of the Col du Mont, which descends into the Val Grisanche, also leads from Bourg to Aosta; on the north it communicates with Contamines and the Chamouni district by the Col du Bonhomme, and on the south side with the Arc valley by the Col d'Iséran.

In its neighbourhood the Isère, which for the first fifteen miles of its course runs in a direction a little west of north, suddenly turns through almost a right angle and goes off to the south-west; the part above this bend being commonly called the Val de Tignes. The mountain mass round which it sweeps, a vast bastion of the intricate fortress of the Tarentaise Alps, is called Mont Pourri—a name derived from the friable shales of which many of its cliffs are composed. Its fir-clad buttresses are seen on the right of the picture, and its snowy summits are very conspicuous in all the views of the Tarentaise from the mountains bounding the Val d'Aoste; in descriptions of which it usually figures as the Iséran. In plan it is a long ridge, running N.W. and S.E., streaming with glaciers on either side, and having two well-marked peaks: the one of which is 11,769 feet above the sea, while the higher and more northerly attains a height of 12,491 feet, and is second only to the Grande Casse among the Tarentaise Alps. The former of these was reached, for the first time, in the month of August, 1861, by Messrs. W. Mathews and Jacob, in an attempted ascent of the higher peak; in the following October, their guide, the late Michel A. Croz, explored the north-western face of the mountain, and, though alone, succeeded in gaining the actual summit. Thither, on the 5th of August of the following year, he led Mr. Mathews and the writer. The course followed is most circuitous; and the ascent, though not very difficult, was a hazardous exploit for a single man. We slept at the chalets of Entre Deux Nants, above the Val Pesey, a small tributary of the Isère, and, after a walk of two hours and a half, gained a deep notch in the main chain. This could also be reached from a steep glen that leads directly down to Bourg, or by ascending the flank of the mountain above Ste. Foi. On leaving this spot, which commands a beautiful view, we passed for a considerable distance along the upper snowfields of a glacier on the eastern face; and then climbed up a steep wall of ice on to the main ridge. Crossing it, we descended into a glacier basin above the Val Pesey, and, after circling round this, gained the (transverse) south-western arête of the mountain, up which we climbed to the sharp-pointed cone of snow which forms the true summit. The position of this peak, its comparative isolation, and its great height, render it one of the finest points of the Western Alps for a panoramic view.

On the opposite side of the Val de Tignes are the massive Rutor, the Oruchme, and the Sassiére; these form that part of the main watershed of the Alps which lies between the Pass of the Little St. Bernard and the tangled knot of summits at the head of the Val Grisanche. The cliffs of the first of these mountains rise grandly above Ste. Foi, and, from the neighbourhood of Bourg, appear to block up the valley.

It is this view which the Artist has selected as most characteristic of the general scenery of the Upper Isère. It is the close of a lovely day early in August; the sun has just set, night is drawing on, and the crescent moon is rising in the eastern sky; but the red glow yet lingers on the rocks and glaciers of the Rutor, and is even reflected back from the sky upon the valley below. The Isère shews with a ghostly gleam, as it runs through the rich meadows that form the level bed of the valley; and over them and its waters, chill from their glacier sources, thin veils of mist are rapidly gathering. Unruffled by a breath of air, they form in long level sheets across the valley, thickening as the night draws on, till the

morning reveals them shrouding stream and field in a dense bank of fog, and the first sunbeams drive them writhing up the mountain side to vanish in the clear blue sky.

We must not quit this district without a word on its history. Many have thought that up this valley, and over the Little St. Bernard, the troops of Hannibal passed on their way to ravage the Italian plains, and contend with Rome for the dominion of the world. A mass of gypsum hard by Séez is pointed out as the "strong white rock" of Polybius, and the gorge below La Thuile as the steep descent whose frozen slopes proved so fatal to the invaders. It would be far too long a task to attempt even a sketch of this controversy; but the writer cannot forbear expressing his opinion, formed after a careful study of the district, that this Pass cannot be reconciled with the description of Polybius. The subject is one of considerable difficulty; but the Little Mont Cénis, whose claims have been so ably advocated by Mr. R. Ellis, appears to him to satisfy most nearly the historical conditions. There is, however, near the summit of the Pass, a rude circle of unhewn blocks, and a stone column of unknown antiquity, which have been described by Brockedon and other authors; and there is no doubt that the road was in general use in the Roman time, when Bourg St. Maurice was called Bergintrum.

The Val de Tignes was traversed in 1689 by the Waldenses, on their daring return through Savoy to their native glens near the Viso. On the fourth day of their march, the exiles, led by Henri Arnaud, descended from the Col du Bonhomme to Séez, where they encamped for the night. On the morrow they advanced as far as Laval, and the following day they crossed by the Mont Iséran into the valley of the Arc, without having met with any serious resistance. The journey of this little band, who, though scarcely eight hundred strong, forced their way by mountain passes through a hostile country, and finally, after many fierce contests, succeeded in establishing themselves in their native valleys, is described by Dr. Beattie, in his "Waldenses." Had it not been stained on several occasions by the ruthless slaughter of prisoners, it would be one of the most glorious, as it is one of the most romantic, exploits in history.









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## MONTE VISO, FROM THE COL DE LA CROIX.

THE Cottian Alps are not visited by travellers so frequently as they deserve; for the beauty of their scenery fully compensates for occasional discomforts in the shape of scanty fare and bad lodging. The valleys on the Italian side are among the most lovely in the Alps. The luxuriant vines and Spanish chestnuts, which clothe every slope in the neighbourhood of the plain of Piedmont, gradually yield, as the path ascends, to walnut groves. Still higher there are forests of larch and pine, alps of finest pasture, crags of slate and serpentine, which in the distance are often of the richest tints; and streams which leap among fallen blocks, or rest in deep pools, whose waters are as emeralds sparkling in the sun. The crests of the higher chains, generally of gneiss, or of hard chlorite, or mica-schist, are rent and shattered by the storm and the frost, till from afar they resemble lines of writhing flames or the tossing waves of a storm-lashed sea. The highest peak in the district is the Viso, the Mons Vesulus of Virgil and Pliny, which towers up so grandly into the sky above the plain of Piedmont. Even from many places in the heart of the city of Turin, far away beyond a vista of houses, its snows may be seen glittering in the sun.

The Viso stands at the point of an acute angle, in the line of the watershed of the Alps; it is a corner tower in the great natural fortress which defends France from Italy. Enclosed within this angle is the head of the valley of the Guil, a river, which, after passing between the vast limestone precipices of the Combe de Queyras, joins the Durance under the fortified cliffs of Mont Dauphin. From the immediate neighbourhood of the Viso four valleys radiate: the one just mentioned, and three whose streams find their way to the Adriatic,—namely, the Valle di Vraita, the Valle di Po, and the Valle di Pellice. The ridges which divide these do not, however, all unite to form the mountain; for, strictly speaking, it does but dominate three of the valleys, that of the Pellice being separated from the Valle di Po, and from the highest glens of the Guil, by the mass of Mont Grenier. The Viso, therefore, is formed by the union of three ridges; two of which are part of the main watershed of the Alps, and the third is a long spur which sinks down into the Piedmontese plain near Saluzzo. Still more, the actual peak, as is very commonly the case in the south-western alps, does not stand on the crest of the watershed, but on the spur; and since it is divided from the frontier line by a narrow gorge, perhaps a thousand feet deep, it is wholly an Italian mountain. This singular feature was, I believe, noticed for the first time by Messrs. William Mathews and Hawkshaw, with myself, in the summer of 1860, during an attempt to discover a route to the summit from the west. We ascended from the valley of the Guil to the Col di Vallante, whence, after turning to the left over some snowbeds, we reached a point on the watershed about 800 feet above the pass. Here we found ourselves nearly opposite to the peak, but cut off from it by this chasm, which appeared quite impassable. It was filled with dense mists, which kept sweeping over us; but the glimpses into its fearful depths, and of the snow-slopes and precipices on the other side, were very grand.

The plan of the peak may be described as a reversed *T*; the left-hand arm of the cross-bar is a short ridge which falls rapidly down to the above-named gorge: the other, a somewhat less steep arête, forming the crest of the spur between the valleys of the Po and Vraita, which may be considered as terminating at the Col delle Sagnette. The leg is long in proportion to the cross-bar, and divides the Vallon di Vallante from an upland glen called the Vallon di Forciolline, to which I shall have to refer in the description of the view of the Viso from the south. The actual summit of the mountain, according to Mr. Mathews, consists of two flat, parallel, rock-strewn ridges, united by a curving arête of snow, broken here and there with rocks. These are schists of foliated chlorite and quartz, of which materials the greater part of the mountain consists; they are “traversed by two systems of joints, one vertical, the other moderately inclined to the horizon,” and weather into pinnacles of the most fantastic shapes. Mr. Mathews gives a sketch of one in the second volume of the second series of “Peaks, Passes, and Glaciers.” As might be supposed, these pinnacles are constantly falling and strewing the slopes below with desolate wastes of débris; indeed, I do not think that I have often passed through wilder scenery than I did in company with him, during a partial tour of the Viso from the valley of the Po westward to that of the Vraita. Variety is given by considerable outcrops of magnesian rocks, such as serpentine and talc-slate, on the eastern side; and these formations also occur, though more sparingly, together with fibrous hornblende, at the head of the valley of the Guil.

The Col de la Croix conducts from Abries, a good-sized village in the last-named valley, to Bobbio, in the Valle di Pellice. About an hour's walk by the side of the Guil brings the traveller to the hamlet of La Mouta, whence a mule-path takes him in rather more than two hours to the Col, a tolerably level

tract of pasturage, nearly a mile long. From this a descent, the latter part of which is rapid, leads to Le Pra, in the valley of the Pellice, and thence to Bobbio, in about three hours. Mr. Walton's sketch is taken from a point which he reached after descending for about a quarter of an hour. The Viso rises over the rocky ridge which divides France from Italy, the *Z* being seen nearly as it would be by an eye looking from left to right along the line of the printing. We see the double-headed summit, the ridge which falls down to the chasm of severance; the jagged *crête* to the right, on which Messrs. Mathews and Jacomb passed the night before their ascent; and the great house-like block which forms the foot of the *Z*, and is sometimes called the Petit Viso. This aspect of the mountain is nearly identical with that which greets the traveller who approaches it from the valley of the Guil, where it comes rather suddenly into view, much as the Matterhorn does in the Visp-Thal; the snowy mass on the left is, I believe, the Mont Grenier. This commands the valleys of the Pellice, Gnielard, and Po, and, like the Viso, stands just east of the watershed. Its summits are called the Grenier Rond and the Grenier Pointu, and are, I think, those seen in the picture—the higher is 10,186 feet above the sea. The ruddy and purple hues of the rocks are due to the rusting of the iron in the chlorite and mica slates. Under the Viso, or a little further to the right, is the Col de Seylières, a gap in a desolate ridge of black mica-schist. I am inclined to think that it is just concealed by the mass of rock in the foreground, because, in 1860, we descended from it by a sloping snow-field, which appeared too large to be wholly melted even in the hottest summer. The head of the Valle di Pellice is below, but only the upper part of the pine-covered slopes on its right bank are visible. A scene more characteristic of the sterner aspect of the Vaudois valleys could not easily have been selected.

We must not leave the Col de la Croix without remarking that it figures more than once in the struggles between the Vaudois Protestants and their persecutors. By it, in 1793, passed the detachment of French soldiers, who, owing to the treachery of its commander, captured Fort Miraboue in the valley below; an event which was nearly revenged upon the guiltless Vandois by a general massacre. By it, too, six years later, three hundred wounded French, who had been abandoned by their retreating comrades, were conveyed home again through the December snows by the inhabitants of the valley. They, though so impoverished by the invasion as to be unable to support this burden, would not suffer their enemies to perish, but in the spirit of true chivalry shrank from no risk, present or future, in order to succour the helpless and to save life.









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## MONTE VISO FROM THE SOUTH.

WE have here a view which is very nearly the reverse of that which has already been described. The double-headed summit of the mountain is distinctly shewn; on the left is the jagged arête connecting it with the house-like block which divides the Vallon delle Forciolline from the head of the Valle di Vallanta; on the right is the ridge that falls rapidly down to the Passo delle Sagnette. The dark mass of snow-streaked rock, from behind which the peak rises, is part of the spur which divides the valley of the Vraita from that of the Po. For some distance beyond the Passo delle Sagnette this runs southward, its rugged crest maintaining an altitude of from 8,500 to 9,500 feet above the sea; then, turning sharply to the east, it rapidly falls some two thousand feet, and with softer and more rounded contours sinks down into the plain of Piedmont.

The sketch was taken from some hill on the south side of the valley of the Vraita, rather above Sampeyre, and not far from the angle mentioned above. A southerly wind is driving masses of vapour up the valley, which eddy in the glens and boil up in steamy curls against the cliffs; higher in the air float other clouds, casting a dark shadow over the crags and alps in the middle distance. These, however, are not densely packed enough to prevent a ray of sunlight from struggling through them to brighten the rock in the foreground. The Viso is as yet quite clear, thanks to a more northerly current which still protects it, and drives back the lines of cirri which have been thrown out like skirmishers by the advancing hosts of the "children of the mist." Contests of this kind are very common, as those who have travelled in this district know well, and far too often end in the victory of the assailants, which, baffled in the early morning, advance again and again to the attack, and gradually gain ground, till by midday they have established themselves on the summits. So, when the traveller reaches the crest of the Alps, after having been lured over weary slopes of débris by the delusive hope of gazing on the icy cliffs of the Viso and the sunny plains of Piedmont, one rich carpet of verdure fading away into the distance, he finds dense mists driving by him; shivering, he crouches awhile under some crag, straining his eyes into the fog, through which loom the neighbouring pinnacles, blasted by countless storms; till at length, in despair of any improvement in the weather, he hurries quickly down to seek a more genial climate. Near the Viso one can hardly be afoot too early. I have thrice crossed the watershed between France and Italy in its immediate neighbourhood without obtaining any view, and yet on two of these occasions the peaks at sunrise were perfectly clear.

From what has been already stated, it will have been understood that the side of the mountain by which the first ascent was made is depicted in this sketch; namely, the head of the Vallon delle Forciolline, which lies immediately below the double-headed summit. The following description is abridged from my friend Mr. W. Mathews's account, in the second series of "Peaks, Passes, and Glaciers." Messrs. Mathews and Jacomb, with the brothers Jean Baptiste and Michel Auguste Croz of La Tour (Chamoumi) as guides, arrived from Château Dauphin at the châteaux in the Forciolline glen about ten o'clock in the morning. The fineness of the weather, the promising aspect of the greater part of the proposed line of ascent, and the knowledge that there was little hope of an extensive view in the middle of the day, determined them to push on at once for the summit, and if possible to sleep there; if not, to bivouac as near to it as possible. They quitted the châteaux a little before noon, and ascended the right bank of the Forciolline, passing first through a forest of arollas, then over rocky slopes strewn with débris, until they reached two mountain tarns. These are fed by a stream which comes dashing down a glen on the left, which appeared to them to lead up towards the summit of the mountain. Accordingly they followed this to its head; and then, after scaling a rocky wall, they gained the actual crest of the mountain, about the middle of the serrated arête which in both this and the former sketch unites the (so-called) Petit Viso with the double-headed summit. The latter rose about 1,400 feet above their heads, and was severed from them by an impassable chasm. Further progress in this direction being thus rendered impossible, they determined to pass the night where they were, and sent one of their guides to explore the way on the opposite side of the gorge below them. After witnessing a glorious sunset, they passed a most interesting though uncomfortable night on their airy perch, 11,249 feet above the sea.

Next morning they descended into the gorge, crossed it, and after climbing a steep snow-slope on the opposite side, approached the crest of the right-hand ridge in the sketch (about the middle of it). By this time they had regained the height of their bivouac, but it had cost them three hours' walking to do it. They now made straight for the summit of the mountain, following the general direction of the ridge, but keeping

usually a little on the left-hand side of it. They passed over couloirs of snow, and climbed cliffs of rock, without any unusual risk or difficulty; except that the immense number of fallen blocks made it almost impossible for the leaders to avoid dislodging some of them, and thus endangering the rearmost of the party. At length, after about a two hours' climb, they gained the summit of the mountain, and were rewarded with a magnificent panoramic view of the Alps, extending from Monte Rosa to the peaks of Dauphiné. Clouds on the Maritime Alps limited the view to the south, and a haze on the east shrouded a considerable portion of the plain of Piedmont. In descending, they followed nearly the same course, until they reached the bottom of the gorgo; after which they bore away to the right, and crossed the Passo dello Sagnette.

Since then the peak has been reached by more than one party of Italian gentlemen; and in July, 1862, Mr. F. F. Tuckett, with Michel A. Croz, Peter Perrin, and Bartolommeo Peyrotte of Bobbio, as guides, passed a night upon it. A sunset of wonderful grandeur was his reward; but clouds gathered during the night, and the morning dawned on thick mists and falling snow. In consequence of this, the descent was a little hazardous, and the chief object of the expedition was frustrated. The isolated position of the Viso would make it an admirable station for meteorological observations; and it is not improbable that before long the Italian *savants* will avail themselves of it for this purpose.







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## WINTER.

**T**HOUGH few travellers see the Alps in winter, when the pine-branches feather downwards under their snowy covering, and the mountain slopes loom out through the murky air: yet a scene like this depicted here may be sometimes witnessed even in the height of summer; for, in unsettled weather, snow often falls on spots under 6,000 feet above the sea, and the white line may be traced running for miles, with remarkable regularity, along the woods and pastures on the side of a valley.

One afternoon in the month of August, 1863, I walked with two friends to a chalet which is situated, at the height of about 7,700 feet above the sea, on the upper pastures of the Dent Parassée. It was a pleasant stroll of about two hours and a half up from the village of Aussois, in the valley of the Arc, through pine woods and over rich Alpine pastures. In the former were numbers of the stately arolla (*pinus cembra*), with a plentiful supply of cones upon their topmost branches. A scramble up the trees brought many of these within the reach of an alpeustock, and their almond-like seeds supplied us with a resinous dessert. The weather had been stormy for two or three days past, and when we retired to rest in a separate chalet full of sweet hay, we had forebodings that the leaden sky and the fleecy mists which were gathering on the hill sides meant mischief.

Happening to wake up the first after the day had broken, I looked out with an inward presentiment that there was something wrong. The snow was falling fast, and the ground was white with it. This, as may be supposed, was unwelcome intelligence to all, and was received with marked disapprobation, as each of our party returned to consciousness. When we turned out, after burrowing discontentedly in the hay for an hour or two, we found that the snow was still falling fast and lay a foot deep on the pastures, while the air was so thick that we could scarce see a dozen yards before us, and even had some difficulty in finding our way to the other chalet. A breakfast, in which mulled wine took the place of coffee, failed to raise our spirits; for nothing could be done after such a downfall for two or three days: so a forced march to Turin was proposed and carried unanimously.

As we descended, the change that had been wrought by a single night was magical. Slopes of snow had replaced green pastures dotted with Alpine flowers. Here and there some coloured cluster of petals peered out incongruously from its frozen shroud, and the feathered plumes of tall grasses were tufted with a strange down. The boughs of the glossy green pines, which we had climbed the day before, were now bent under their snowy burden. In a word, winter in a few hours had taken the place of summer.

Late that night, after walking over the Cénis in a perfect hurricane, we reached Turin; and the following morning, though the clouds still lay thick upon the Alps, were luxuriating in the sunshine of Italy.









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## THE GRAND PARADIS, FROM NEAR COGNE.

THE district of the Eastern Graians is the first and most important of the great spurs which protrude from the principal chain into the lowlands of Piedmont, and retain a general parallelism with the axis of the Pennines. In many respects it is analogous to the valleys of the Dauphiné Alps, most of its summits being ranged on a sort of horse-shoe round a large valley (the Val de Cogne), and a deep depression severing the group from the main chain. We may also compare the Orco with the Romanche, the Doire with the Drac, and the Val Savaranche with the Val Godemar. Although from the Becca di Nona to the Grivola, from one extremity of the horse-shoe to the other, there are summits which rise above the snow-level, yet the principal glaciers descend from three lines of peaks which radiate from the Grand Paradis as a centre. Two of these form part of what we may call the watershed of the Eastern Graians; the third divides the Val Savaranche from the lower portion of the Val de Cogne. East of the Paradis are three distinct summits, called respectively, the Rossa Viva, the Tour du Grand St. Pierre, and the Punta di Lavina; west of it, the Cima de Charforon, La Cocagna, and the Becca di Merlet; the northern spur contains the Grande Serre and the Grivola—a noble peak, of which also there is a drawing in this book. The principal glaciers in this district of the Graians, with one conspicuous exception, occupy the heads of three valleys, one of which is the Val Savaranche; the other two—the Val Ontey and the Comba di Valciglia—are tributaries of the Val de Cogne. The greater steepness of the southern face of the chain, and its exposure to the sun, prevent the formation of any important glacier in the glens which descend to the Val d'Orco.

The Grand Paradis is a rocky ridge, lying north-east and south-west, which, as seen in the picture, falls down, on the one side, in fearful precipices to the glaciers of the Combe de Val Ontey; and on the other, descends with curving slopes of snow to the ice-fields at the head of the Val Savaranche. The snowy cap, from which a little turret of crumbling rock juts out, as though to supply visitors with souvenirs, has never yet been reached from the eastern side, and a glance at the sketch will shew that this is not a tempting route. I have examined it carefully, and, though I will not commit myself to calling it impossible, I would recommend any one who tries it to insure his life heavily before starting. The western face, however, presents no special difficulty; and, by it the summit was first reached, in August, 1860, by Mr. Cowell, with Michel Payot and Jean Tairraz (of Aosta) as guides; and it has since been occasionally ascended. The billowy fields of ice, which descend from it and its subordinate peaks into the head of the Val Savaranche, are most beautiful; and it was with great regret that, owing to the unsettled state of the weather, I was obliged to leave it unclimbed.

The scenery of the Eastern Graians, in my opinion, entitles them to a high rank among the Alpine districts. Though less elevated than the Pennine or Oberland chains, several of their summits are either above or very near 12,000 feet; and though their glaciers are small compared with many of those in Switzerland, they combine with the northern sternness of rock and ice-field the southern loveliness of leafy wood and trellised vine. Above all, soft and smiling are the slopes of the Val Locarno as they slumber in the mid-day blaze of an Italian sun, or are clothed with an evening glory of amber lights and purple shades; then as twilight steals over the sky, and the far-off mountain-crests are silvered by the moon, the firefly's fitful gleam, and the cicala's ceaseless whir, shew that we are indeed in "Italia, bella Italia."

The village of Cogne, the *chef-lieu* of the valley of that name, is built on the edge of a grassy plain, at the junction of the Val Ontey with the main valley. Its Counts were important personages in the Middle Ages, and an old ballad of the Eriingerthal (quoted by Mr. Tuckett in *Peaks, Passes, and Glaciers*, vol. ii.) tells how its "Green Counts" came from the Castle Chillon to harry the meadows of the Valais. The tower of their château, dated 1374, is still standing near the parsonage, and has often sheltered travellers. On each of my visits I was entertained by the worthy curé, M. Chamonin, a brave mountaineer, who, though full sixty years of age, succeeded after several attempts in scaling the forbidding cliffs which form the south-eastern face of the Grivola. Although neither this mountain nor the summit of the Paradis are visible from Cogne, yet the shattered séracs and steep snow-fields of the Glacier de Grameron, which seems to block up the head of the Val Ontey, are very beautiful; while the rugged crags all round, which lift themselves into the sky above forest-clad slopes, with the grassy meadows sparkling with morning dew at their feet, leave but little to be desired. Nor is this all: from the village itself, the eye can range down the Val de Cogne over many a folding curve of pine-wood and pasture to the sunny hills across the Doire, above which, nearly thirty miles away as the crow flies, rises the snowy mass of Mont Blanc. Among the

many views which I have had of this glorious mountain, even more striking from afar than from near, few have impressed me more than this; as I saw it in the evening—its snows cool grey, flushed here and there with rose—rising above violet-shadowed mountains into the orange glow of the western sky; and again, the next morning, one mass of burning gold, while night yet lingered on forest and meadow in the Val de Cogne.

Mr. Walton obtained this sketch of the Paradis by mounting a pine-clad hill, which rises on the south-east, immediately above the village; it is a pleasant stroll, just suited for one of those mornings which are devoted to well-earned rest after a day of severe exertion among the higher peaks; when the mountaineer abandons himself for a while to the lotus-eater's feeling, and "sits him down" not, indeed, "between the sun and moon upon the shore," but under some great rock, dappled with the lichen rust of ages, or beneath the solemn branches of a hoary fir, and dreamily gazes—"a thousand fancies buzzing in his brain"—on many a league of glaciers glittering in the sun, on silent armies of pines that stand in serried ranks on the mountain-side; and on sloping alps or level meadows, with brown clusters of chalets, from which comes up the lowing of kine and the bleating of sheep, with the melody of the cattle-bells.

In the centre of the picture is the Grand Paradis; its snow-capped summit crowning the wall of fearful precipices which, as was said above, forms the eastern face of the mountain. The ridge on the right runs for some distance nearly at the same level, until it rises again into the splintered peak of the Grande Serre; that on the left falls down rapidly towards the Col de Granerou. Over it, just on the left of the highest shoulder of the mountain, may be seen the summit of a separate and subordinate peak, which, if I mistake not, is the true "centrum" of the three ridges mentioned in the first paragraph. The extensive snow-fields under the cliffs of the Paradis bear the singular name of the Plan de la Tribulation; whether given by some Alpine theologian, to teach that through much tribulation is the way to Paradise, I cannot say; but I fear that most of those who try to reach the bourne by this road, will find the cliffs beyond more impassable than the bridge of Es-sirah, and the plain itself too truly named. The meadows of the Val Ontey, dotted here and there with chalets, are seen below, and the stream turbid with glacier mud, winding its way among them towards Cogne. The view gives a good idea of the mingling of richness and wildness which is so characteristic of the Graian Alps; and I venture to predict that in a few years' time an excursion to Cogne will be as ordinary an episode in a visit to the Val d'Aoste as a diversion to Sixt now is to those who are journeying from Geneva to Chamouni.









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## THE GRIVOLA, FROM NEAR THE COL D'ARBOLI.

THE Grivola, as it has been already remarked, does not stand on the backbone of the Eastern Graians, but terminates a spur which runs northward, like an advanced work of a citadel, and divides the Val Savarache from the Val de Cogne. In form it is a four-sided pyramid, with the edges nearly towards the four points of the compass. The N.E. and N.W. faces are steep slopes of snow, the S.E. and S.W. still steeper walls of rock. The northern arête is that singular curved line of snow so conspicuous in the view which is obtained from near Villeneuve, in the Val d'Aoste.

Mr. Walton's sketch is taken from a point a short distance below the Col d'Arbole (a pass leading from Aosta to Cogne), and shews the peak rising above the morning mists that are steaming up from the Val de Cogne. It is thus nearly the same view as is obtained from the summit of the Becca di Nona. We are looking full at the N.E. slope of the mountain: below the cliffs, on the S.E. face, is the great névé of the Trajo glacier, which descends in a vast cascade of riven ice towards the valley of Cogne, and is bounded on the left by the ridge of the Poussets.

After both M. Chamonin, the curé of Cogne, and Mr. Tuckett had assailed the mountain without success, Messrs. Bruce and Ormsby, warned by their failures, on August 23rd, 1859, scaled the cliffs of the S.W. face, and arrived on the crest of the Grivola, within a short distance of the summit. There, under the impression that they were practically on the top of the mountain, they halted; but one of their guides, A. Dayné, climbed on, and was thus the first man to set foot on the highest point of this virgin peak. In 1861, M. Chamonin at last succeeded in climbing the S.E. face; his route, the year after, was followed by Mr. Tuckett, and (about six weeks later) by Mr. W. Mathews and myself, with the brothers Croz as guides, and a porter from Cogne.

After passing the night at the chalets of Pousset Dessus, we set out, at a quarter to four, on a cloudy morning in August. We began at once to ascend the rough slopes of grass and rock behind the chalets, and in about an hour saw the ridge of the Poussets above us, from which we were to get our first view of the summit of the Grivola. Four chamois retreated before us as we advanced, and at 4.50 we stepped on the rocky crest and looked across the white snowfield of the Glacier du Trajo, to the grand peak for which we were bound. It is a vast mass of dark-green chlorite slate thrust up between two beds of rusty-red mica schist, one of which runs for some distance along the left side of the glacier, the other gradually curves round towards us, and, after forming the subordinate peaks of La Blanche (that next to the Grivola in the picture) and La Rossa, encloses the head of the glacier and terminates in the ridge on which we were standing.

Our day's work now lay before us; the glacier was smooth and easy, but the dark crags beyond, scamed with long couloirs, looked rather formidable. The distant view, however, claimed for the moment our attention. To the right of the Grivola were the familiar forms of Mont Blanc and the Pennine chain; but behind us a flat sea of clouds shrouded everything below 10,000 feet, from which a few mountain peaks rose like rocky islands. A brightening glow in the east told us that we had not arrived too soon: a golden gleam illuminated the summit of the Grivola, and crept slowly downward; a flash of light darted across the fleecy ocean beneath us, and the sun rose slowly up, pouring a flood of dazzling radiance over the dead expanse of white mist below.

After this we proceeded along the ridge, in the direction of La Rossa, over piles of loose rock, until we came to a spot which offered an easy descent to the Trajo glacier; this we crossed without difficulty, and in an hour and twenty minutes halted at the foot of the mountain for breakfast. We broke up our party at five minutes to seven, and at once addressed ourselves to the real work of the day. About eighteen hundred feet of steep rock had to be climbed before we could stand on the summit of the Grivola. A few steps up a rapid snow slope brought us to the foot of one of the rock couloirs, and up this we scrambled. For the next two hours there was plenty to do, but little to describe; now we clambered on all fours up a steep smooth slab, now climbed with hands and feet up a gully or cliff, not disdainning once or twice a haul in front or a shove behind; now and then for a change finding a few yards up which we could walk erect as on a rude staircase, until at 8.35 we reached the E. arête and glanced down one of the smooth slopes of snow visible from the Val d'Aoste. This view, however, lasted but for a few minutes, and we again turned our faces to the rocks. I saw that we were approaching the top, but was beginning to feel somewhat tired of such severe and monotonous work, and was consoling myself with the thought that about another quarter of an hour would bring it to an end, when the clatter of the iron-shod poles,

carried by Mathews and one of the guides, who were a few yards ahead of me, suddenly ceased. I supposed that they had halted to rest, or to wait for me, and accordingly hauled myself up the great block which separated us, when to my surprise I looked down into the Val Savaranche. I glanced round: right and left of me was a stone-man; we were on the summit. This is an arête about 25 or 30 feet long and 3 or 4 wide, slightly crescent-shaped, with the concavity towards the Val Savaranche; it consists of large loose blocks, and rocks split and shattered in every direction. These are a greyish-green chlorite slate, with large veins of quartz. At each end was a stone-man about eight feet high; in a niche in the southern was a mercurial minimum thermometer, placed there by Tuckett, with a small plaster Madonna, deposited by the worthy curé; to the northern one a metal crucifix was attached, nailed there by the same hand, and a fragment of a broken alpen-stock was wedged between the topmost blocks by way of a flagstaff.

We soon fitted ourselves into comfortable crannies; then, as the clouds began to rise, the theodolite was set up, and while Mathews was at work with it, I employed myself in sketching the main chain of the Graians, of which, as may be supposed, we had a glorious view. The Pointe de Tersiva and the Punta di Lavina were soon blotted out by clouds; but the Tour St. Pierre, the Rossa Viva, the Grand Paradis, and its three subordinate summits, were as nearly as possible clear. Dense sheets of vapour concealed much of the Tarentaise; but we had over them a glimpse of the Viso and the grand towerlike masses of my old friends, the Pelvoux, the Écrins, and the other mountains of Dauphiné. Nearer to us were the Grande Motte, the Grande Casse, the Sassièrè, and our late conquest, the Pourri; the whole of the Pennine chain was visible, and also one of the lower western summits of the Oberland, above the depression of the Great St. Bernard. The grandeur of the view—one of the most extensive in the Alps—is increased by the sense of isolation, which is given by the steepness of the mountain. The narrow ridge, on which we were seated, descended rapidly at either end in a series of jagged weather-worn pinnacles for a considerable distance, and the cliffs leading down into the Val Savaranche were even steeper than those up which we had clambered; so that our eyes, when we raised them from the blocks whereon we were standing, rested next on some alp or glacier lying two or three thousand feet below.

Time sped too rapidly, and a little before noon we reluctantly quitted the summit of the Grivola. The descent was perhaps more trying to the nerves than the ascent, for it is not very easy to contemplate unmoved a glacier one or two thousand feet below, with a few yards of smooth rock sloping down steeply from under your feet to the edge of an apparent precipice. However, by great care, we got down without trouble, except that once or twice stones dislodged by those in the rear would come rattling down in disagreeable proximity to the leaders. Most haste is generally worst speed in descending rocks. In about an hour and a half we regained our breakfast-place at the foot of the peak, from which we retraced our steps across the glacier, and in another hour reached the place where we had first struck the arête of the Poussets. Here we found Mr. Walton hard at work upon a sketch of the Grivola; so we waited until he had finished, and then descended to the châtelets. There creamy bowls of milk awaited us, welcome fare on a summer afternoon; our hospitable hosts bringing forth supplies even more inexhaustible than our appetites. And so we lingered like the lotus-eaters, seated, not upon the "yellow sand," but upon the soft turf, until the lengthening shadows warned us to depart. Then, after more than contenting the kindly châtelet folk with what seemed to us no very liberal return for their endeavours for our comfort, we retraced our steps to Cogne. From the Grivola we had marked down a promising depression between the Tour St. Pierre and the Rossa Viva, but during the night the clouds amply fulfilled their promises; so, after waiting a day, we were obliged to content ourselves with one of the beaten tracks across the chain, and it was not until a year later that we had the pleasure of effecting one of the finest passages over the Graian Alps.









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## NEAR COURMAYEUR. CLOUD STREAMERS.

**B**AD weather is coming on. Very likely it was a lovely morning—too bright, as they say, to last—but there was a halmy softness in the air just before dawn, that made the weather-wise shake their heads ominously. There was a suspicious whiteness in the horizon soon after sunrise; and about eight o'clock, wavy curls of cirrus wreathed their delicate filaments in long trains across the sky. These spread from one to another, and, losing all the beauty of their outline, thickened into flat shoals in the blue firmament. Soon there came also a change in it: a muddy greyness spread all abroad, before which the blue faded slowly away. Clouds gathered on the hills, now here, now there; and eddying puffs of wind came careering up the valley. At the present moment the sun, though not yet obscured, has a "watery glare,"—a faint and chilly light; and the breeze from the south-east sweeps over the mountain-tops, damp from the reeking plains of Piedmont. In an hour or two more there will be neither peak nor snow visible; but only grey vapours driving low on the Alpine pastures: no song of bird, nor chirp of grasshopper will be heard; but the ceaseless plash of the falling rain, and the sigh of the wind waving to and fro the dripping branches.

The picture represents a phenomenon not uncommon in a mountain district at times like these: the formation of streamers or drift-clouds on the lee side of exposed peaks. The wind is warm, and saturated with water. It strikes upon the snow-sprinkled crags; the suspended moisture is condensed into vesicles; and a cloud is the result. The headlong blast suffers not the vapour to gather on the face of the mountain: still, it shivers as it passes by; and is rendered grosser from its contact with earth. Those parts of the current which have but brushed the topmost pinnacles, being but little chilled and hurried on with undiminished force, give birth to only a few flecks of vapour, which are soon torn asunder and absorbed again; but those which have swept along the crags, as a rushing river round a projecting rock, are thickened into dense mists, which eddy under their lee, and cling to them in long streamers of cloud. The upper surface of these is swept smooth by the gale, and is only here and there ruffled when a plunging blast catches up some chance fragment which is speedily torn up and devoured. Not so on the lower: there, under the shelter of the mountain, the cloud either melts into a fine drizzling rain, or fades gradually away in curls of vapour, which roll with serpent-like writhings down the pastures, or trail their fibres in mid air.

The stream of the Doire, which, after receiving the drainage of the whole southern face of the Mont Blanc range, runs southward for some three miles, begins to bend to the east soon after passing Courmayeur, and sweeps round the base of a mountain called Carmel or Cornet, which faces the Cramont and, with the Mont de la Saxe, forms a kind of crescent-like termination to the axis of the Eastern Pennines. It rises in a series of pyramidal buttresses to a height of 9,057 feet above the sea, a thousand feet over its better-known neighbour, and almost exactly equal to the Cramont. It is, I believe, like the other mountains in the vicinity, composed of slaty shales, more or less micaceous, with calcareous beds, which have a general northerly dip, and so break into precipices on the southern face. The village in the foreground is, probably, Palévioux, a little hamlet on the road to Courmayeur, after passing the turn to Pré St. Didier. Though some 3,500 feet above the sea, and within a few miles of the glaciers, the power of the sun is so great, that walnuts and many other deciduous trees grow around it luxuriantly; and the southern slopes of the mountains above are bare and burnt. As, however, under ordinary circumstances, there is nothing in either the mountain or the village to make a very vivid or permanent impression on the memory, I may have mistaken the exact spot which is represented in the picture: still it is some place in the immediate neighbourhood of Palévioux.









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## A TORRENT—VAL TOURNANCHE.

THIS valley is one of the most frequented of those which radiate from the *massif* of Monte Rosa; for the comparative easiness of the Col de St. Théodulo has made it almost a highway between Switzerland and Italy. I do not know any route which possesses to so high a degree all the beauties of the glacier passes, and is at the same time so free from their difficulties. The views of the ranges of Monte Rosa and of the Weisshorn on the one side, and of the Matterhorn on the other—indeed, on both sides—together with that of the Breithorn and the Petit Mont Cervin, whose pure slopes of snow, broken here and there by dark crags, rise close to the Col; the wide extent of glacier which has to be traversed (a walk of from two to three hours); all render the scenery equal to almost any in the High Alps; while at the same time the gentle slope of the snow-fields and the ease with which they may be approached—even by horses—from either side, place all these beauties within the reach of very moderate walkers; and with the most ordinary precaution, there is absolutely no danger in the excursion. The present sketch represents some one of the fine gorges through which the main torrent of the valley passes in the neighbourhood of Val Tournanche village; and even those who have forgotten this particular view (as I confess to having done) will recollect halting for a while at an angle in the path, where it begins to descend rapidly towards Val Tournanche, and turning aside on to a slippery rock in order to watch the torrent plunging down the crags and foaming among the blocks of green and purple serpentine below. There have been heavy and continued falls of rain in the mountains; down each glen is rushing a swollen stream; the main torrent roars along, already more than brim-full; boiling among the boulders, leaping greedily at the overhanging boughs of the larches, and splashing them with its yeasty foam. The beauty of the scene is heightened by the rich purple of the wetted serpentine contrasting with the bright orange blots of lichen, and by the amber tint of the water. The latter effect would be wanting in many of the Alpine valleys, because their torrents are mainly supplied from the glaciers, and are therefore ever dull and turbid with fine mud; but in the Val Tournanche there are no ice-fields of any extent, and the stream, chiefly nourished by rills descending from Alpine pastures and peaty glens, retains something of that amber hue so beautiful in the swollen burns of Scotland or of Wales.

I have more than once witnessed the effects of a prolonged rainfall upon an Alpine torrent: but the most remarkable instance was at Zermatt, in 1860, after the great September storm, which, among other mischief, so severely injured the Splügen road; and I shall not readily forget the awful grandeur of the scene, or the roar of the flood as it swept on trees and even great boulders in its course. Instead, however, of relating more minutely my impressions of this occurrence, I will give an extract from a letter which I have lately received from Mr. Walton, describing the results of one of the storms of last September in the Val d'Aoste:—

“ After three days and three nights continuous rain, the Doire and the Valpelline torrent were swollen  
“ to such a degree that I distinctly heard their roar in my room at the Hôtel du Mont Blanc. I rambled  
“ out to look at them; that from the Valpelline was a terrific sight. As I stood by the brink of the  
“ boiling and surging flood, large trees were swept by, and even huge boulders were forced along, which  
“ made the very ground tremble beneath my feet with the violence with which they were hurled against  
“ the projecting rocks; the crash resembled the sound of distant artillery. Higher up I saw trees and land  
“ slide away into the raging waters; as they were hurried along they seemed to struggle against the impulse,  
“ and resist as if they were living creatures,—now they panted against some obstacle in the torrent which  
“ gave them a vantage-ground for a while; then they were swept on again, every bough trembling as though  
“ in terror of the coming destruction; now they reached some quieter spot, where a breathing-space, as  
“ it were, was allowed them; then the struggle began anew, and they were again exposed to the full  
“ force of the torrent. Down they went, as if the monster had devoured them; then they rose again to  
“ the surface, leafless and broken,—mere wrecks. After a few days I again visited the spot; fertile land  
“ had been swept away, and its place was occupied by wastes of gravel and piles of boulders.”

It may be worth mentioning that a deep gorge, through which the torrent passes about an hour's walk above Val Tournanche, has recently been made accessible. Mr. Walton was the first Englishman to visit it; and a short description has been published of it under the title “Le Gouffre des Busserailles,” by my friend Canon Carrel of Aosta. The following extracts will give some idea of this interesting spot:—

“ Le gouffre est si étroit au sommet que la lumière n'y peut pénétrer que par de petites ouvertures en forme de lucarnes. *Parois.*—Les parois verticales de ce gouffre, depuis le sommet jusqu'au fond, sont tout à fait accidentées. La roche (serpentine) est moutonnée et écaillée, polie sans brillant et sans *stries*. C'est

une preuve évidente que l'eau, le sable et les courants boueux ne strient pas les roches. Le glacier n'a certainement pas pu pénétrer dans cette étroite gorge. *Grottes.*—Ce qu'il y a de plus remarquable et de plus grandiose dans ce gouffre, ce sont des grottes circulaires que l'on voit de part et d'autre. Je n'ai visité que la plus grande. Elle a près de neuf mètres en longueur, du midi au nord, et six de rayon de l'est à l'ouest. La hauteur est de mètres 4,30. Aussi l'ai-je appelée *Grotte-des-Géants*. Cette grotte est presque régulière et ronde. Les guides m'ont assuré qu'il y en a une autre au-dessus presque de la même forme, mais un peu plus petite. Elle a été nommée *Grotte de J. Maquignaz*, qui l'a vue le premier. Il y a une troisième grotte près du pont qui traverse le gouffre ; les frères Maquignaz la nomment *Grotte-Walton*. M. Elijah Walton, peintre anglais, a visité le *Gouffre des Busserailles* le 28 janvier 1866. Il en a dressé un plan à la hâte. Ce plan sera déposé dans la *Grotte-des-Géants*, dans une caisse solide de bois de noyer. Au-dessus de la petite cascade on aperçoit aussi une autre grotte que M. Walton a appelée *Grotte-du-veau*, parce qu'un veau tombé par accident dans le gouffre, il y a environ deux mois, s'y balançait encore sur l'eau quand il l'a visité."







Postcard of the Library.



## THE VELAN, FROM NEAR AOSTA.

IN the Pennine chain is one strongly-marked depression; a trough in the wave-like lines of summits that run from north-east to south-west across a considerable part of Central Europe. Its lowest point is at the Col Ferrox, where a band of soft shales succeeds the hard slates of the Mont Blanc range; and just beyond the eastern edge of this band lies the well-known Pass of the Great St. Bernard. The physical features of this district are very conspicuous from the summits to the south of Aosta, whence some one of the western outliers of the Oberland will be seen in the far distance across the depression; while the aiguilles of the Mont Blanc chain overhang on the one side like the broken crest of an advancing wave, and the Vêlan and Grand Combin rise up on the other to represent the one which has rolled past.

The scenery of the St. Bernard is, for an Alpine pass, dull and dreary. When once the traveller has left behind the pastoral beauty of the Val Ferrex, or the rich luxury of the Valpelline, his path winds over bare rocks on the one side, and coarse bleak pastures on the other; and if, as is often the case, cold mists are driving by the Hospice and over the gloomy waters of the little tarn beside it, he will have but few pleasant reminiscences of his journey. Still, even on the darkest day, the pass is not wholly without interest.

Here, more than two thousand years ago, the Veragri reared their rude altars to their mountain God; here Roman travellers for centuries afterwards paused on their journey to worship at the fane of Pennine Jove. Through this gap have swept Roman legions and Ostrogoth hordes, Saracens and Franks, Burgundians and Lombards. By it, Cæsar led his legions through the winter's snow, Charlemagne returned from the conquest of Lombardy, Humbert the White-handed marched to invade Burgundy, and Napoleon advanced to win the battle of Marengo. Here, too, the Apostle of the Alps, Bernard of Menthon, established his Hospice on the foundation of an earlier Bernard, from whose days up to the present an unbroken line of Christian monks have devoted themselves gladly to "spend and be spent" for their fellow men; enduring cold and hardship, with the certainty of an early death or a crippled age, to relieve the wants of poor travellers.

If, however, the day be clear, the grand snow-capped ridge of the Vêlan will greatly relieve the monotony of the northern side of the pass; its crags are especially striking from the little Plan de Proz and from the side of the tarn beyond the Hospice, the favourite point of view for sketchers. This mountain stands on the watershed of the Pennine chain, at the point where a short but rather high spur runs out to the north-west, and divides the torrent of the Valsorey from the upper waters of the Drause. In the western of the two angles thus formed lies the Glacier de Proz; in the eastern two ice-streams sweep down, which unite with that from the Col de Souadon to form the Glacier de Valsorey; but the south-eastern face of the Vêlan, which overhangs the Val d'Ollomont, is too steep to allow of snow accumulating. The summit of the mountain, 12,353 feet above the sea, is a flattened dome of snow, and the view from it is described by Mr. W. Mathews, who ascended it in 1856 ("Peaks, Passes, and Glaciers," 1st Series, p. 76), as one of the finest that he had ever seen. He mounted by the Glacier de Proz descended by the Glacier de Valsorey.

The Vêlan and the Combin are both very conspicuous from the neighbourhood of Aosta; and Mr. Walton, in selecting his point of view of the former, seems to have judiciously borne in mind the general character of the pass with which it is commonly associated. Hence, instead of contrasting its dark cliffs with a foreground of vineyard or meadow from the opening of the Valpelline, he has drawn it rising over the slopes that bound the valley. These, with their sunburnt alps and dusty crags, recall the coarse pastures above St. Remy; and the light mist floating along the snow-streaked cliff tells of the fog and storm, against which the traveller must often battle before he can gain the friendly shelter of the Hospice.











Bust of the artist.



## IN THE VALLEY OF AOSTA.

I DO not know any better descriptive text to this picture than the following extract from Mr. Ruskin's "Chapter on the Mountain Glory," in which several of the effects here given are described with a felicity of expression that is peculiarly his own:—

"Consider first the difference produced in the whole tone of landscape colour by the introductions 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 subdued afternoon sunshine, are nearly perfect purple, 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 and 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* of 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." ("Modern Painters," vol. iv., p. 355.)

The scene represented is a portion of the Val d'Aoste. The northern side of this valley, between the city of Aosta and the village of Courmayeur, mainly consists of a mass of altered shales and slates, which for the most part, I believe, belong to the carboniferous measures. Under these, which form the depression of the St. Bernard neighbourhood, the crystalline axis of the Eastern Pennines, which runs roughly parallel to the Mont Blanc chain, buries itself, and may be considered to be terminated by the Mont de la Saxe above Courmayeur. Nearly at right angles to this axis there is a short range, which is divided from it by the Col de la Scréna, and separates one branch of the Valpelline from the Val d'Aoste. Its highest point appears to bear the name of Mont Vertosan, or Mont Falère (there is, however, some confusion on this point), and is, according to Canon Carrel, 9,956 feet in height above the sea. This is, probably, the peak represented in the picture. I cannot, however, speak positively; because the quantity of snow upon it gives it a dignity which is not possessed by any summit of that district at a later period of the year. It, with the neighbouring mountains, consists of steeply-inclined beds of schist, which commonly have a northerly or north-easterly dip. In some places these schists are black, "like the rubbish of an old coalpit" (King); in others, earthy and micaceous, decomposing rather readily into fine scaly dust. Hence the slopes of the Val d'Aoste which face the south are comparatively bare of trees; still, in compensation, the rich purple clusters hang from the trellised vines full three thousand feet above the sea, and the cornfields spread their golden patches far up the mountain sides. At times, when the harvest is over, and the bare fields are glittering in the blaze of an August sun, the traveller, heated and dusty, pronounces the Val d'Aoste "a delusion and a snare," its city "a nasty place," and hurries away as fast as he can. This I venture to think a mistake; these bare hill sides are beautiful in the lights of dawn, and still more in the evening, when the rich purples of their lower slopes melt away into the ethereal softness of that amber light which is poured over them from the glowing arch of the western sky.

There are not many pleasanter resting-places for the Alpine traveller than Jean Tairraz's Hôtel du Mont Blanc, built just outside the walls in full view of the glaciers of the Rutor; nor many towns richer in antiquities, Roman and Mediaeval, than Aosta itself. To describe these, however, would be too long a task: we must return to the picture before us. The sun has been up some little time on a bright May morning; and his rays are fast creeping down the mountain slopes to the bed of the valley. The night dews are steaming up from the cornfields and pastures; and the light haze shrouds the details of the higher peaks, which, powdered with fresh snow, shine more like the unsubstantial forms of a dream than masses of solid rock overhanging many an acre of shattered *débris*. The mists, still flushed here and there with the rose of dawn, are melting away into the cirrus flecks of the sky. By-and-by denser flocks will be sent rolling up the cliffs, when the sunbeams glance upon the level pastures by the river side; there, at present, the fog lies sleeping on the wet grass. The sun, striking horizontally the full-grown cones on the larch tree in the foreground, from whose trunk either the rush of winter snow, or the peasant's axe, has lopped the lower branches, lends to their ripper purples a glowing flush that almost revives the March crimson of their budding.











R. L. ...



## MONT BLANC, FROM THE COL D'ANTERNE.

THIS is one of the passes which lead from Sixt to Chamouni, across the ridge joining the Buet to the Rochers des Fys. The forces which have determined the contour of the district on the immediate north of the Mont Blanc chain have wrought with so much apparent irregularity and opposition of purpose that, though a close examination detects a conformity to the general law of two systems of parallel trenches crossing each other at nearly right angles, the valleys themselves ramify and interlace in a very unexpected manner; so that the traveller is liable to find himself quite at fault in his ideas of place and direction. For this reason it is impossible to get from Sixt to Chamouni, a distance of only about eleven miles in a direct line, without crossing at least two mountain passes, or making a considerable detour; for the pathway over the Buet leads down into the glen of the Trient, which flows towards the Rhone, while the tracks lying between this mountain and the Rochers des Fys descend into a valley which is nearly parallel to that of Chamouni and joins the Arve ten miles away at Servoz.

It would not be easy to find a day's walk in the Alps which commands finer views, and leads through a greater variety of scenery, than the most direct of these mountain roads from Sixt to Chamouni, that by the Col d'Anterne and the ridge of the Brévent. After a lingering parting look at the snowy crown of the Pointe de Tenneverges, and the magnificent wall of limestone cliffs which from Sixt appears to close the valley of the Giffre-Bas, the traveller skirts the rich meadows purpled with crocuses, near the junction of the streams, and ascends by the right bank of the Giffre-Haut. Here the slopes of the mountains are clothed with groves of larch and pine, and the Cascade de Roget, with other minor falls, rushes down the cliffs on the opposite side of the valley. Further on a choice of routes is offered, and the traveller can either follow the more circuitous course of the new mule-track, which ascends the Vallée des Fonds, a magnificent gorge, where every step reveals some new combination of forest and alp, rushing torrent, and wild cliffs of twisted shale; or he can turn to the right, and after passing by the falls of La Pleureuse, whose waters clothe the rock with a "slow dropping veil of thinnest lawn," can climb the steeper and shorter track which runs along a precipitous shoulder of the Pointe de Salles. I can scarce say which is the more beautiful; both ought to be seen, and, as they unite at the Châlets d'Anterne, would form a delightful day's excursion on horseback or on foot from Sixt. The meadows above and below these châteaux are in the early part of the summer perfect gardens of Alpine flowers. The ground is studded with gentians; some with great spikes of saffron or of purple flowers; others with pale lilac spires, or, lowlier yet, with bell or star of deepest blue. The delicate pink auricula lurks among the grass; while here and there rise luxuriant clusters of anemone with their creamy-white blossoms and hoary tufts of seed, and the flowers of countless pansies tinge with violet each swelling alp. As we mount higher, after passing by the muddy pool called the Lac d'Anterne, the scene becomes more desolate, and the rich flowers of the pasturages give place to the moss-like tufts of the purple saxifrage or pink androsace, and the pale cups of the glacier ranunculus. Yet a little higher and we are among the dreary wastes which form the crest of the chain. These "break continually into black banks of shattered slate, all glistening and sodden with slow tricklings of clogged, incapable streams; the snow-water oozing through them in a cold sweat, and spreading itself in creeping stains among their dust; ever and anon a shaking here and there, and a handful or two of their particles or flakes trembling down, one sees not why, into more total dissolution, leaving a few jagged teeth, like the edges of knives eaten away by vinegar, projecting through the half-dislodged mass from the inner rock, . . . and sloping away into foul ravines, branched down immeasurable slopes of barrenness, where the winds howl and wander continually, and the snow lies in wasted and sorrowful fields, covered with sooty dust, that collects in streaks and stains at the bottom of all its thawing ripples. I know no other scenes so appalling as these in storm, or so woful in sunshine." (*Modern Painters*, vol. iv. p. 126.) If the traveller cross the Col d'Anterne on a clear day, the magnificent view of Mont Blanc and his Aiguilles may induce him to think this description too strongly worded; but if, as was my experience, the dull mists are sweeping over the pass, he will fully appreciate its truthfulness.

Leaving behind these dreary shales, we now descend (if bound for Chamouni) into the head of the valley of the Dioza, a place of much interest to the geologist, not only from the extensive section which it presents of rocks ranging from the cretaceous to the palæozoic eras, but also from the fossil plants which are found in a bed of shale in the upper part of the carboniferous strata. Some beautiful specimens of these, collected and presented by Mr. Wills, may be seen in the British Museum.

On the other side of the Dioza the scenery again changes: we are now climbing the steep flank of the crystalline range which extends, parallel to the chain of Mont Blanc, from the Aiguilles Rouges to the Brévent, and forms the north side of the valley of Chamouni. Here, too, the cliffs are wild and bare, and the mountain sides are strewn with fallen blocks; but it is the dignity of age, not the loathsomeness of decay, the strength, sturdy in the ruin, of the eastle wall, where the ivy can grasp and the creeper cling, not the miry rottenness of the coalpit bank: so dwarf-pines embrace them with their snaky arms, ferns—prickly holly and crisp parsley—nestle in each crevice, and rhododendrons clothe the slopes with a vesture of rusty green, and, each summer, set them all aglow with their crimson tufts of flowers. Then, when the snow-streaked crest is gained, Mont Blanc appears again, not as before partially masked by intervening mountains, but rising in uninterrupted grandeur more than twelve thousand feet above the valley of Chamouni; perhaps too, all flushed with the setting sun.

This sketch depicts one of those strange visions of beauty which sometimes reward the traveller at the close of a misty and dreary day. Mr. Walton has climbed along the ridge near the Col d'Anterne—probably in the direction of the Pointe de Salles—till he has reached a spot where the cliffs are capped by some more compact beds, which in decaying break into bolder pinnacles and steeper crags than are usual in the immediate neighbourhood of the pass. The rocks, however, in the foreground are covered thick with the flaky dust which shivers down constantly from their splintered edges, though the thin sprinkling of fresh-fallen snow has somewhat masked their mouldering surfaces, and rendered them less monotonous in their desolation. The haze is fast disappearing, melting mysteriously away, as it so frequently does in the evening; thin filaments constantly breaking off from the main masses, and shewing for one moment as delicate cirrus in the sky before vanishing away. The evening flush has faded from the rocks in the foreground, leaving them cold and dead, but it still lingers for a moment on the higher crags, and illuminates the floating mist with rose and orange hues. Beyond these rises the "Calotte"—the summit of Mont Blanc—almost above the zone of coloured light; the blue-grey shadows on its pure surface marking where its steeper slopes break into great cliffs and chasms of ice, as they fall down towards the Grand Plateau, the snows of which may be seen faintly gleaming through the bands of purple haze.







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## DENT DU MIDI, FROM THE VALLEY OF THE RHONE.

**M**OST lovers of the Alps will recognise in this picture an old friend. Those who have lingered awhile—and who has not?—on the northern shores of the Lake of Geneva, will remember the craggy ridge of the Dent du Midi, sombre in the morning light, glittering in the noontide radiance, and flushed with rose or purple hues at sunset. At times, when the thunder-clouds gather around the cliffs, an awful grandeur takes the place of this almost unearthly beauty. Often I have watched them gradually massing themselves in the valley of the Rhone, while, as a black mist creeps on and thickens, the snows are veiled, the peaks are hidden; cliffs and slopes, pine woods and pastures, are blotted out by the inky haze; the darkness that may be felt seems nigh at hand; the air is hot and suffocating; the stillness is deathful, but it lasts not long. The lightning flash glitters crookedly athwart the cloud; the thunder, “Heaven’s high organ,” rolls, echoing from peak to peak; and with heralding blast, and rushing torrent of rain, the storm hursts over the lake. Often during my summer’s stay on Lake Lemane did I have cause to admire the truthfulness of Byron’s description of one of its tempests, when I heard “Jura answering through her misty shroud, back to the joyous Alps,” and saw that “the mightiest of the storms” ever took its stand

“Where the swift Rhone cleaves his way between  
Heights which appear as lovers who have parted  
In hate.”

Mr. Ruskin, in his fourth volume of “Modern Painters,” gives, in a few words, an admirable description of the contour of the Dent du Midi. “It is cut,” he writes, “out of horizontal beds of rock which are traceable in the evening light by their dark and light lines along its sides, like courses of masonry; the real form of the mountain being that of the ridge of a steep house-roof, jagged and broken at the top, so that, seen from near St. Maurice, the extremity of the ridge appears a sharp pyramid.” This view is given in the picture, which perfectly represents the geological features of the mountain; and as the district exhibits some peculiarities which are not common in other parts of the Alps, it may be worth while to say a few words concerning it.

A glance at a geological map of the Alps will show that there is a very decided tendency to parallelism in the principal chains, in the western and central districts, and that a series of bands of crystalline rock run in a general N.E. and S.W. direction, along the axis of which stand many of the most important summits. The main valleys, as might be expected, lie in the folds between these; but here and there deep transverse gashes occur which, intersecting the longitudinal depressions, divert their drainage into an entirely different channel. Parallel to the great crystalline mass of the Mont Blanc range are two smaller nuclei; the one forming the Breven and the sharp peaks of the Aiguilles Rouges; the other marked by the chain of summits which extends from the Rochers de Fys to the Dent du Midi, and thence by the Dent de Morcles to the Western Oberland. The last two peaks are severed by the deep cleft through which the waters of the Rhone escape to the Lake of Geneva, and at this natural scotion, and here only in the Western Oberland, so far as I know, the axis of crystalline rock is exhibited. The summits of all this chain consist of either secondary or tertiary strata, often much contorted and altered, and present many features in common. Beds of limestone, with partings of shale, give rise to the tremendous terraces of rock which render the scenery of this district not less impressive than that of many more important groups. The mud avalanches of the Dent du Midi and the wild ruin which the peaks of the Diablerets have scattered over the glen of the Lizerne, are the results of Nature building in this style of architecture with mortar of insufficient strength. Vast buttresses of limestone support the house-like block that caps the Dent du Midi. Two of these buttresses are conspicuous here, and in the angle between them nestles a small glacier, which, though not visible in the sketch, is a very marked feature in the more distant views of the mountain. The walls are built up of limestone crags, and the roof is formed of beds of shale and rock; these at the top are weathered into jagged peaks, which, from the Lake of Geneva, are not unlike (as it has been well said) the cusps of a gigantic molar tooth. No doubt they are in a great measure due to the huge joints which cleave vertically through the horizontal beds, and are no less conspicuous than the lines of stratification. I have them marked down very plainly in a sketch which I made from a Col between

Ormonds Dessus and the Arnen Thal,—a point of view nearly in a line with that chosen by Mr. Walton, which shews the general aspect of the mountain from the north, the 'tooth' being placed along a line lying from about N.N.E. to S.S.W.

The pine-clad slopes which lead down from the Dent du Midi to the Val d'Iliez are of great beauty: and the views up this lovely valley are the chief attractions of the neighbourhood of Bex: in fact, the whole of the district between the Wildstrubel and the Buet, which, as I have said, has the same general characteristics, is well worth careful examination. Though the glaciers are comparatively small, and the summits less elevated than those of the Oberland proper or the Pennine chain, their crags, rich in mellow tints, their green alps and forests of pine, give them a charm of their own, which in the evening light can hardly be surpassed.

It is this moment that Mr. Walton has seized for representing the Dent du Midi. It is the last hour of an almost cloudless summer day: the beams of the sun are still lingering on the peak, and flooding its tawny crags with rosy light. Among the pine-tree tops the evening mists are gathering, and spreading thence in filmy veils across the valleys; not a breath of air ruffles them as they steam gently upwards around the peak, and chase the flying rays of the setting sun, by whose kiss they are crimsoned. Mark the contrast between them and the cirrus clouds in the sky. These, miles away from the earth, and far above the evening glow, float in the pale green vault of heaven, uncoloured save by that primrose hue which a great distance lends alike to clouds and snow.







Es. 17. 1877.



## THE DENT DU MIDI, FROM NEAR CHAMPÉRY.

I HAVE already described the position and general characteristics of the Dent du Midi; and in connexion with it have mentioned the Val d'Illicz, which is generally considered to be one of the most beautiful localities in the Alps. The great charm of all the district which lies between the crystalline masses of the Aiguilles Rouges and the Central Oberland is the exquisite combination of the richest pastoral and the boldest rock scenery. If the eye is sated with the luxuriance of forest and pasture, it can turn to the rugged cliffs and snowy peaks above; or if oppressed by the lifeless grandeur of these, it can fall back again for repose upon pine-woods and meadows at their feet. The scenery of the higher crystalline regions, such, for example, as the Aiguilles of Chamouni, or the wild mountains which form the central *massif* of Dauphiné, becomes after a time almost wearisome. The lonely majesty of those towering peaks, among whose splintered pinnacles not even the marmot and the chamois can find sustenance, the desolation of those stony deserts, enclosed by barren crags, the deathful silence of those leagues of ice and snow, is a strain upon the mind too intense for long endurance; and, though it is often healthful to leave the heaps teeming with our brother emmets, and "all the windy ways of men," and to seek out a Horeb for ourselves; yet we soon discover that only for a while is it good for man to be alone, and are glad to see once more the brown clusters of châteaux on the grassy slopes, and hear the mower's *jodel*, with the ceaseless music of the cattle-bells.

Under the influence of this feeling, however unconscious they may be of its existence, nearly all would prefer for a home (other considerations apart) some sloping alp near Sepey, Sixt, or Champéry to the most commanding crag near Zermatt or Chamouni. With regard to two of these rival claimants for the palm of pastoral beauty, Mr. Wills says (*The Eagle's Nest*, p. 172) that one place only has, even for a moment, seemed a worthy competitor with his own Châlet des Fonds on the slopes of the Buet, and that is the neighbourhood of Champéry, in the Val d'Illicz. Unfortunately, I have twice been prevented from exploring this valley, and therefore am not qualified to express an opinion. I have, however, seen enough to be convinced—even without the picture before me—that it cannot be far behind the rest of the district in beauty.

We have here another sketch of the Dent du Midi taken (also in the evening, though in less settled weather) from some point in the neighbourhood of Champéry. The tooth-like ridge of shale and limestone which crowns the mountain and gives it a name, culminates in five 'cusps' of not very unequal elevation, called, in the Val d'Illicz, Les Dents de Tsallen. Three of these are included in this sketch, together with a deep gorge, which severs the second from the third, and, being filled with snow, appears from afar as a gleaming streak on the rocky wall. On the extreme left is seen this third cusp, which, from its singular outline, is named at Champéry "the Lion's Head." That on the right is the actual summit of the mountain, which rises to a height of 10,450 feet above the sea. A snowy saddle, from which a few spikes of rock project sharply, connects this cusp with the second, which is, I believe, identical with the white pyramid seen on the right of the gable-like end of the Dent in the other picture. Owing to the great steepness of this western flank, there are now no glaciers of any importance upon it; but on the other there is an extensive snow-field, the torrent from which flows through the glen of the Sallenche and forms the beautiful cascade so well known to all who have travelled along the Rhone valley.

The ascent of the Dent du Midi, though rather a circuitous and toilsome business, is in no respect difficult or dangerous. It was accomplished for the first time, so long ago as 1784, by M. Clément, the curé of Champéry. In August, 1834, M. Gillahert, prior of the Val d'Illicz, accompanied by thirty-one of his parishioners, planted a cross on the summit: this, having been destroyed by lightning, was five years afterwards restored, at his desire, by another large party of the inhabitants. The first stage of the ascent leads to a considerable upland valley formed by the union of two glens, which descend in nearly opposite directions from the Col de Sagéroux and the Col de Sesanfe. The path to the latter is then followed. This pass crosses the ridge (seen descending to the right, and masked by snow in the picture) which connects the Dent du Midi with the Tours Sallières; and from the neighbourhood of it, a rough scramble over slopes of rocky *débris*—the aforesaid tooth suffering much from *caries*—leads directly to the summit, a mass of enormous blocks, commanding a glorious view of the greater part of the mountains of Western and Central Switzerland, and even of the distant peaks of Dauphiné. Some seven or eight hours are required for the ascent; there is, however, a more direct but more difficult route from Champéry. This mounts for a considerable distance along the buttress which descends from the principal peak; then, near the dark pinnacle of rock which is seen in the sketch rising sharply above a snowy hollow, it turns to the right and passes along the face of the precipices by narrow ledges till it strikes the ridge leading down to the Col de Sesanfe a few hundred feet below the summit. Though shorter in distance, it would not always be found to save time, and, I should think, cannot lead through such varied scenery as the more circuitous course by the Col de Sesanfe.



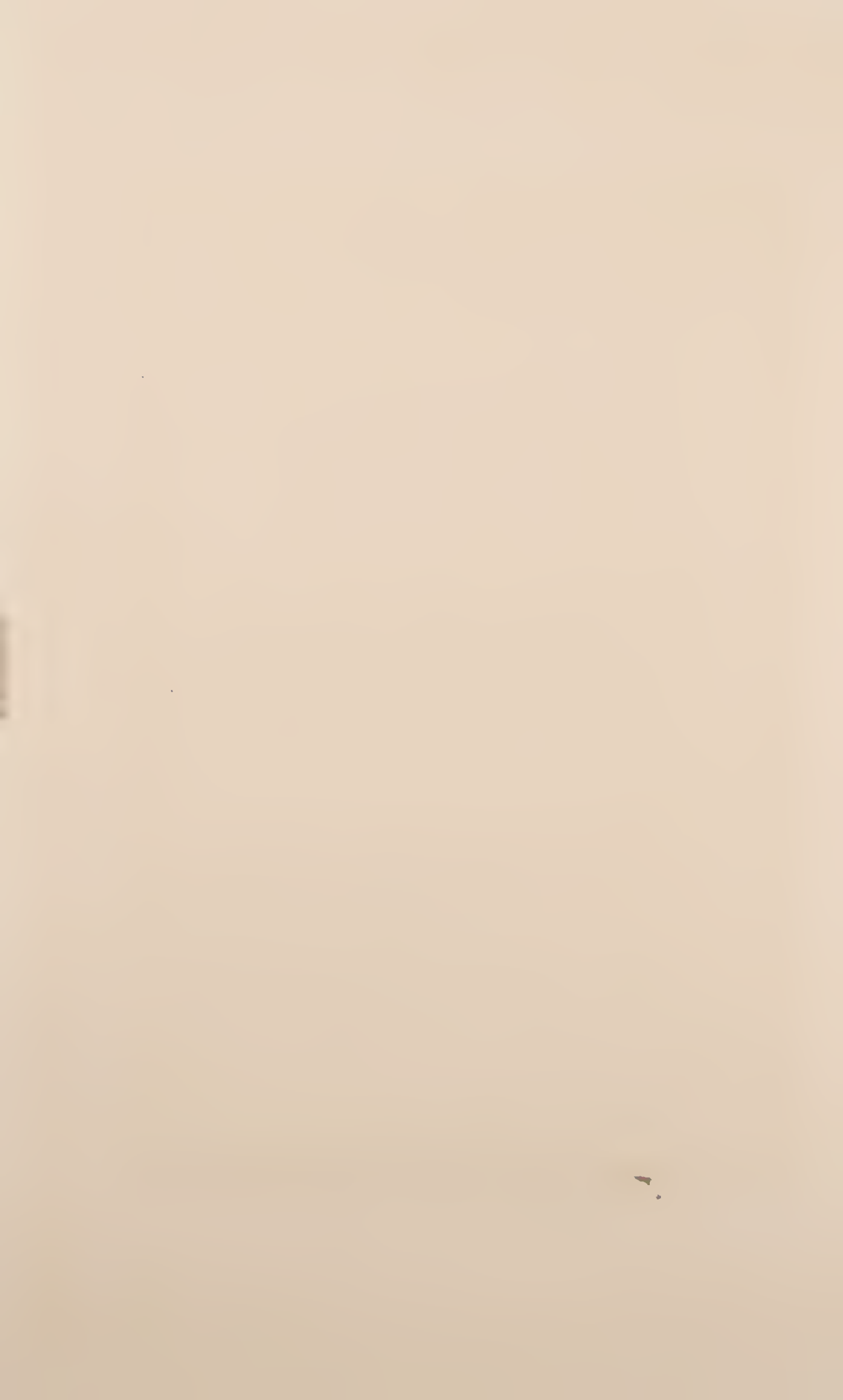








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## CASCADE DE ROGET AND THE POINTE DE SALLES.

THERE must be some cause for the instinctive delight which water in motion gives to all, whether old or young, educated or ignorant; the splash of the leaping stream and the roll of the heaving ocean must be in unison with some secret chord in the soul. It cannot be the mere consciousness that life is impossible without water: for, though our eyes dwell upon still tarns or lakes as on spots of colour of exquisite intensity; as on mirrors to repeat in a softened harmony the tints of hill and forest, and to gleam beneath the arch of the eastern or western sky; or even as suggestive of peace and purity; we love them rather for what they are able to borrow from others than for themselves. Nor can it be the mere pleasure in change and motion; for we cannot watch the sway of the forest boughs or the "waves of shadow run over the wheat" so long as the tiniest mountain rill or the smallest ripple of the sea on a sandy shore. Rather it must be the unconscious feeling that, more than any other thing in the natural world, moving water seems to possess a life which is at once akin to our own, and yet less liable to change and death. To the Pantheist, as well as to the more thoughtful Polytheist, is suggested that union of matter with incorruptible and unchangeable life which has for the Christian been set forth in a far more perfect way. Thus the old Greek not only gave to every fountain and rill its proper Naiad, but also poured around the plain of his habitable world no waveless sea, but the mighty strength of the river Okeanos. This very Okeanos, the son of Omranos and Gaia, by his mythic parentage seems to signify that when the impalpable quickening spirit operates upon inert palpable matter, that "dynamical condition of organisms" results which we call life. Humanity, in the oldest mystery play that has come down to our times, the Prometheus Vinctus, in the person of the hero appeals from the Gods of Olympus to the powers of Nature—the old strife between theosophy and theology—and, while invoking against Zeus, Hades, and Poseidon, the Air, the Earth, and the Water, calls upon the last, not as the level plain of calm ocean, but as "the fountains of rivers, and countless dimples of the sea waves." We, too, though we have banished from the streams classic Naiads and Nymphs equally with mediæval Nixes and Undines, have yet a place in our most sacred thoughts for the river of water of life that wells forth from the Throne of God.

The waterfalls, therefore, which abound in nearly every Alpine valley, are among the greatest pleasures in our wanderings. Almost endless variety in form and beauty is to be found among them. There is the Rhine with mighty roar plunging over the rocks by Laufen Castle,—the Staubbach steaming down one long column of spray,—the Giessbach leaping from crag to crag through the pine forest,—the Aar plunging its turbid waters into the deep chasm of Handeck,—the Tosa spreading in bell-like sheets over the smooth domes of granite,—and the Sallenche enveloping the cliffs with its network of shining rills; and if we would go where no would-be guides, idle beggars, and vendors of minerals or pictures can vex the soul and mar the harmony of nature, we need only retreat to the nearest unfrequented valley, and almost every turn of the path will shew us some new beauty in the rushing torrent or some fresh silver thread streaming down the cliffs or alps.

Of the gleus of the Giffre, no less than of the valley of Lanterbrunnen, are those words of our Poet Laureate felt to be an exact description:—

"A hail of streams! some, like a downward smoke,  
Slow-dropping veils of thinnest lawn, did go;  
And some thro' wavering lights and shadows broke,  
Rolling a slumbrous sheet of foam below."

From every notch in the limestone terraces of the Fer-à-Cheval spouts out a stream fed by some unnoticed spring or bed of snow in the gleus which lie hid above those steep crags. Of these, some, like the Méridienne, dash impetuously down; others, slender streams, seem "like a downward smoke...along the cliff to fall and pause and fall;" while in the other valley, La Plenreuse, whose nymph must be another Undine in her sorrow, and the fuller flood of the Cascade de Roget, answer precisely to the two classes which are described in the verses quoted above. The latter of these forms the subject of the accompanying picture. It is situated on the left bank of the Giffre-Haut, a short hour's walk from Sixt. Its waters issue from a considerable upland valley under the Têtes des Marmosettes; and being wholly supplied by springs and surface-drainage, are free from the pollution of glacier mud which often sullies many fine torrents. They rush down some steep cliffs, the materials of which are too soft and friable to allow the stream to bury itself

in a narrow gorge, as is common in the crystalline rocks; for here, as fast as a notch is sawn, the air and the frost crumble away the sides, and excavate it into a hollow combe, as is seen in the sketch.

In order to obtain the view of the Cascade de Roget which we have now before us, it is necessary to ascend the right bank of the valley to some distance above the mule-path, where the upper part of the fall comes well into sight. Recent rain has swelled the stream, and freshly-fallen snow has whitened the branches of the pine wood, through which its waters hasten to their fall, as well as the mountain that rises above them. The level field of stratus cloud that clings about the base of the crags, the haze that fills the air, and the flecks of cirrus which almost veil the blue sky with their waving tresses, shew that the rain has not long ceased, and that the leaves and herbage sparkle with more than morning dew. The golden glory of sunrise has as yet scarcely faded from the sky, and the misty air is full of diffused light. Very beautiful is the dreamy softness of the mountain mass in the background as it towers on high above the cloud, its silence and peace in marked contrast with the boiling torrent and tossing spray below;—ceaseless work and restless energy here, a great calm there.

This mountain, the Pointe de Salles—part of the chain of the Rochers des Fys—is by no means one of the least remarkable objects in the neighbourhood of Sixt. Its precipices are among the grandest that I have ever seen. Mr. Ruskin, than who no one is more competent to express an opinion, says of them: “The most frightful and most characteristic cliff in the whole group (that between Mont Blanc and the Oberland) is the range of the Rochers des Fys, above the Col d’Anterne. It happens to have a bed of harder limestone at the top than in any other part of its mass; and this bed, protecting its summit, enables it to form itself into the most ghastly ranges of pinnacle which I know among mountains. In one spot the upper ledge of limestone has formed a complete cornice, or rather bracket—for it is not extended enough to constitute a cornice, which projects far into the air over the wall of ash rock, and is seen against the clouds, when they pass into the chasm beyond, like the nodding coping-stone of a castle—only the wall below is not less than 2,500 feet in height,—not vertical, but steep enough to seem so to the imagination.” (*Modern Painters*, vol. IV. p. 248.)

In the picture before us the vesture of freshly-fallen snow and the veil of haze, transfused with a soft shadowless light, present the mountain under a very different aspect to that in the above description; but my first view of it, though a distant one, gave me the same impression. Descending from an unfrequented pass called the Col de Jonxplane, which leads from the head of the main valley of the Dranse (Chablais) to Samöens in the valley of the Giffre, we reached a projecting knoll which commanded a magnificent view of the chain of Mont Blanc. The snowy ‘Calotte’ was before us, with the lower peaks which enclose the recesses of the Grand Plateau. This, however, was entirely concealed by a huge mass of rock, the Pointe de Salles, which intervened between the Monts Maudits and the Calotte, and appeared almost black by contrast with the white mountain behind, which was quite dwarfed by the tremendous precipices overhanging the Col d’Anterne.

I need only add that the Pointe de Salles, according to Mr. Wills, can be ascended without difficulty from the upper part of the glen which runs up from the valley of the Giffre-Haut into the heart of the Rochers des Fys. The summit, which is reached after a fatiguing scramble over a desert of broken and fissured rock, is rather more than 10,000 feet above the sea: it commands a view which is very similar to that from the Buet, and is in no respect less extensive or beautiful.









DUST      11. 1. 1884 f.



THE  
POINTE DE TENNEVERGES, FROM NEAR SIXT.

IN the heart of the mountain mass which intervenes between the Lake of Geneva and the valley of the Arve lies the little village of Sixt, near the junction of two streams which drain the snow-fields on the western face of the ridge connecting the Chamouni and Oberland systems. From this great causeway, which runs generally at a height of about 8,000 feet above the sea, rises a series of mountains, commencing with the Buet, and concluding with the Wildstrubel, which in form and arrangement may not inaptly be compared to the ruined piers of a bridge. They all consist of almost horizontal layers of limestone and shale, arranged often in courses like masonry, and are usually crowned by either a tolerably level snow-field or a series of jagged peaks of nearly equal height. The second of these piers, in which, to continue our simile, some portion of the spandril has remained and formed a rugged cone, is the Pointe de Tenneverges, whose snowy summit rises to a height of 9,620 feet above the sea. The mountains throughout this district are extremely steep, especially on their western or north-western faces: the effect of which is that the heads of the valleys are often enclosed by apparently inaccessible precipices. Here, too, and here only, so far as I know, in the Alps, we find places resembling those curious amphitheatres of rock, which, under the name of cirques, are common in the Pyrenees. The two finest examples of these, by far, lie on opposite sides of the deep cleft through which the Rhone finds its way to the Lake of Geneva: they are the Creux-de-Champs in the Val des Ormonds, and the Fer-à-Cheval near Sixt.

This village, so long almost unknown, is rapidly becoming a favourite haunt of Alpine travellers. It stands close to the river-side, among rich fields, at a height of 2,513 feet above the sea. The climate is consequently more genial than that of Chamouni, and the scenery far more luxuriant. The road from Samoëns along the banks of the Giffre passes through a valley of exquisite beauty, which at one time contracts almost to a gorge, at another opens out into richly-cultivated fields. On entering Sixt, the road, after passing a number of insignificant cottages, mostly built of wood, leads into an open place very near to the river. In the middle of this flourishes a fine old lime-tree, and at the eastern end of the square stands the chureh, by the side of a large and rather dilapidated building which is now entitled the Hôtel des Cascades. It was formerly a convent, and is said to have been founded A.D. 1144; but, so far as I am aware, no traces of the original structure are visible in the present house, which, at most, cannot be more than two centuries old. For those who can rest content with simple fare and plain lodging, it will furnish pleasant quarters, and the neighbourhood offers numbers of excursions, one of the most beautiful of which is to the Fer-à-Cheval.

Leaving the village, a rough char-road ascends the glen of the Giffre-Bas, passing through varied scenery with views of ever increasing grandeur ahead; till in about an hour and a quarter it reaches the dreary remains of an *éboulement*, which took place in the year 1602, and destroyed a considerable village with 157 of its inhabitants. There is a small chapel on the spot, to which the inhabitants go annually in procession in memory of the calamity. After advancing a little further, and crossing the Giffre, we find ourselves on a tolerably level plain, pretty thickly covered with firs, alders, and brushwood; it is semicircular in form, and is enclosed like the orchestra of an ancient theatre by walls of magnificent limestone cliffs, which rise precipice above precipice to a height of some 2,000 feet. Between these are slopes of *débris*, which here and there are covered with a fine herbage. So steep and slippery, however, are these banks, that many grass-cutters have perished by losing their footing and rolling over the precipices below, and the hay is carried by the simple process of binding it in bundles and throwing it down the cliffs. Indeed, the upper pastures are so difficult of access from this side, that from time immemorial, they have been let to the peasants of the Valorsine, who drive their cattle to them over passes more than 8,000 feet above the sea. Though their existence would hardly be suspected from below, they are of considerable extent and value; for at the top of the first tier of precipices an upland valley stretches far back into the heart of the range, under the crags of the Pointe de Tenneverges.

The base of this mountain is formed by an enormous wall of limestone precipices, which extends without a break from the neighbourhood of the Col de Sagéroux, at the head of the valley of the Giffre-Bas, to the peak called La Tête Noire on the other side of the amphitheatre of the Fer-à-Cheval. Piles of *débris*, the accumulation of centuries, are heaped against it, and sweep down far into the valley in graceful curves of repose. Above it, steep slopes of broken shale stretch upwards, from which rises another wall of steep cliffs, consisting of bands of limestone, with occasional shale partings. This forms the general crest of

the range, and in this the upland valley leading to the Col de Tenneverges has been excavated. The actual peak of the Pointe de Tenneverges rises immediately on the north of this valley, and is thus constructed:—A slight slope of debris, crowning the above-mentioned wall, marks the presence of another but thinner band of shale, which leads up to a third wall of cliffs, consisting of alternate bands of shale and limestone. This is crowned by a rude dome of loose rubbish, which is generally thickly covered with snow. The sides of the mountain are fissured by enormous joints, and its crags are weathered into the wildest forms, and rise like ruined castles crowned by lines of crumbling battlements and tottering turrets. One enormous wedge of the uppermost wall of cliffs is perfectly isolated from the main mass by a narrow gorge. It is very conspicuous in all the views of the mountain from the neighbourhood of Sixt, and may be distinguished—though with difficulty, owing to the unfavourable light—just under the summit in the sketch before us.

To obtain this, Mr. Walton has wandered from the main road into the rich meadows near the junction of the two branches of the Giffre. The evening glow is flushing the snows and tawny crags of the Pointe de Tenneverges. To the right of the peak, under the purpling cloud, curving slopes of snow mark the course of the upland valley just mentioned; and below this the gathering haze indicates the position of the Fer-à-Cheval. A thin film of mist bridges together the steep sides of the glen of the Giffre-Bas, the course of which may be traced from the village of Sixt, which, with its church, is seen on the left of the picture. The tender light and soft evening glow; the birds circling idly through the air, and the peasants returning home from their toil in cornfield or meadow; the smoke curling slowly up from the cottages, and the thin haze half-veiling the Alpine slopes; even the sturdy buttresses, which sweep upwards to the swelling dome of the mountain,—all harmonize to tell of repose after labour and unbroken peace. The motto of the picture might be written in one word—Rest.

To enjoy the Fer-à-Cheval properly, at least a whole day should be devoted to it; so changeful is the play of colour on its massive tiers of cliffs, and so varied the aspect of its limestone crags from the time when it lies deep in shadow in the early morning to when it is all aglow with the setting sun. The Pointe de Tenneverges also, whose precipices, if possible, are even wilder than those of the Fer-à-Cheval, is a magnificent object from this part of the valley. The pyramidal form in which it appeared at Sixt is entirely altered; its upper tier of cliffs, with the snowy conical cap, is concealed by that below; but from the brink of this, gashed by many a narrow chasm and gaping joint, rises a dizzy tower-like crag, itself no unworthy summit. Below this yawns a dark gorge, a deep notch in the lower range of precipices, down which a torrent plunges. It is worth notice that, though at first sight this appears to be a simple gorge of erosion, worn by the torrent through the softer shales which here cap the cliffs, the limestone strata on the right bank are considerably tilted, and there is unquestionable evidence of local disturbance in the face of the neighbouring cliffs. Numbers of streamlets come dashing down the precipices of the Fer-à-Cheval, seaming it with tiny threads of spray. As the day draws on, their waters are perceptibly augmented; and they decline again as the westering sun loses its power on the snows by which they are fed.

To the left of the Pointe de Tenneverges is another wild range of precipitous crags, connecting it with Mont Ruan. This curtain-wall is capped with large glaciers, the extremities of which can here and there be seen from below, above deep gorges, from which their torrents issue in grand cascades. All this part of the valley, though lonely and desolate, is hardly less grand than that which has been already described. In one of the gloomiest of these gorges, the depths of which are accessible only to the raven and the *lämmergeyer*, Bahmat, the guide of De Saussure, and the first man who reached the summit of Mont Blanc, is believed to have perished. He was clambering along some slippery ledges of rock above it in search of a gold-vein, being then in his seventy-second year, and fell into the fearful chasm below. The whole story is told by Mr. Wills in his pleasant volume, "The Eagle's Nest in the Valley of Sixt."

The first ascent of the Pointe de Tenneverges was made by this skilful mountaineer. Starting from Sixt, on the morning of October 6th, 1863, he scaled the steep cliffs of the Fer-à-Cheval by a narrow track close to the side of one of the principal cascades, called *La Méridienne*, mounted the steep grass slopes above them, and then, after turning the second terrace-wall of cliffs by a shelving bank of debris, gained the upland valley already mentioned. After following this for a considerable distance, he bore away to the left towards the base of the actual peak, and by a laborious and sometimes difficult climb up a series of rocky walls separated by steep banks of loose shale, gained the summit, which commanded a magnificent panoramic view. On a subsequent occasion he, accompanied by Mr. Milman, mounted to the top of the Col de Sagéroux, traversed the glaciers of Mont Ruan, and climbed the northern face of the peak, returning to Sixt by his former route. He speaks in the highest terms of the magnificence of the scenery throughout the whole excursion, an account of which is given in the second volume of the "Alpine Journal."







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## THE GORNER GLACIER.

ZERMATT is becoming so well known that it is perhaps almost superfluous to state that the Gorner, or, as it is sometimes called, Boden Glacier, is with regard to it what the Glacier des Bois is to Chamouni; at once the largest and most conspicuous of the ice-streams in its neighbourhood. The analogy holds also in the topography of the two glaciers. In each case we find a large valley extending far back among the mountains, enclosed with giant peaks, forming a natural amphitheatre on the grandest scale, to which a steep narrow gorge, as a vomitory, gives access from below. From all the surrounding summits a number of glaciers descend into the comparatively level floor of the arena, and there weld themselves together to form the grand plain of ice that lies beneath the cliffs of the Gorner Grat. On arriving at the entrance to the gorge the glacier is at once shattered by the rough steps of the rocky staircase, down which it descends; then, after sweeping round the buttress of the Riffelberg, so well known for its mountain inn, it spreads itself out on the green meadows above the chalets of Winkelmatten. Thus it is seen on the approach to Zermatt protruding from the gorge like the paw of a monstrous griffin.

This sketch is taken from some point on the rocky flank of the Riffelberg, on a level with the upper part of the icefall. The scramble along the right bank of the glacier, though rough and occasionally a little difficult, is a pleasant morning's excursion from Zermatt, and the views thus obtained of it are of course much finer than those from the usual path to the Riffelberg inn, which, I believe, can be reached by this route, though it must be a steep climb. The rich greens and purples of the slaty rocks, polished in many places with the ice which in bygone ages swept over them; the ferns, rhododendrons, and Alpine plants rooted in every crevice; the stately arollas and towering pines, often hoary with age and streaming with the chamois-herd lichen; and the broken cliffs of ice, with their glittering pinnacles and deep blue chasms, form an endless series of pictures, each one of which seems to bid us exclaim—"We will not wander more."

One of these views is, however, here depicted under a somewhat different aspect; as, for instance, it may be often seen during a period of bad weather in September; in fact, it reminds me strongly of my last visit to Zermatt. The snow has been falling; it has flecked the pines with white, and gathered on each ridge and pinnacle of ice. On Monte Rosa and the Lyskamm, the storm yet rages; but a puff of north wind has blown the mists away from the snow-capped Breithorn, though they yet cling reluctantly to the cliffs below the Theodule Glacier. The five moraines, which run in such distinct causeways along the upper ice-sea, are here broken up and scattered over the glacier. Were it not for the fresh snow, their dark brown stains would occasionally mar the purity of the ice. From time to time one of the blocks, poised upon some slippery ridge, loses its balance, falls, and is engulfed with a hollow roar; or a pinnacle of ice comes crashing down. The varied forms and shivered outlines of these frozen cliffs tell better than any words the tremendous strain which the ice has suffered in its rough descent, and here and there in the blue walls of the crevasses may be traced indications of the "veined structure," the result of that irresistible Brunah-Press of Nature which has squeezed the wide-spread plain of glacier through the narrow portals of the gorge.









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## THE MATTERHORN.

THROUGHOUT the whole range of the Alps there is no peak which can rival the awful grandeur and weird beauty of the Matterhorn, as it rises, like a vast obelisk of rock, full 4,000 feet above the surrounding ice-sea. No one can ever forget the moment when, on approaching Zermatt, a turn in the valley unexpectedly reveals this mountain; or when, for the first time, he sees, from the glaciers of Monte Rosa, its summit gleam like an altar-fire under the rays of the rising sun. From the former place it has been likened, among other similitudes, to a rearing horse; somewhat inaccurately, as I venture to think; for to me it suggests no idea of imminent motion or of instability, but rather appears like some huge Sphinx couchant with outstretched paws on its icy bed, and watching in the calm, conscious grandeur of irresistible strength over mountain and valley, plain and sea, for the first beams of the eastern sun—the messengers from its desert home. It is this aspect of perfect stability which renders it more impressive than the aiguilles of Chamouni and the crags of Dauphiné—these, splintered and torn, seem to yield to ruin and decay; it stands as though “ages passed over it like the morning dew, and left no more trace.”

Still, though a closer study of the mountain proves that it too is obedient to the universal law of decay and degradation, our sense of its self-reliant strength is at the same time increased. An obelisk I called it above, for such is the term which at the first gaze seems most appropriate, and the form under which it is commonly portrayed; but as we follow its contour line by line, ridge after ridge, and slope after slope, we learn how erroneous are our first impressions, how strongly nature's work is done, and at the same time, how much grander is the firmly-rooted pyramid of its true form, than the brittle spire which our excited fancy first sketched.

We cannot, however, fully appreciate this quality of stability in the architecture of the Matterhorn without examining it on all sides, and seeing with what sturdy props the towering peak is upheld. The ground plan of the mountain is an irregular pentagon, or, more correctly, a blunted star of five unequal rays. Three principal ridges and two buttresses converge near the foot of the final peak, which may be roughly described as a block of rock six or seven hundred feet in height, in form not unlike a ridge-roof cottage. This stands at an angle in the line of the watershed of the Pennine Alps, and looks down into the Nicolai-Thal, upon the pastures and glaciers around Zermatt, on the north; into the head of the Val Tournanche on the south; and on the east upon the great plateau of snow and ice which connects it with the Breithorn and the rest of the Monte Rosa range. Of these three ridges, one comes down to the above-named plateau in the direction of the Théodule Pass; another ends in the well-known rock of the Hörnli, so conspicuous from Zermatt; and the third runs on to the peak of the Dent d'Hérens, and, like a curtain wall, links together these two great bastions of the Alpine fortress. One of the buttresses, a mere offshoot from this last ridge, falls down towards the Val Tournanche; and the other terminates in tremendous precipices over the Zmutt Glacier. The first and second ridges, with the eastern face of the mountain, are shown in the accompanying picture, enclosing the névé of the Furgge Glacier; while the third, together with the second buttress, is seen in profile on the right; but from this cause, and from the absence of light, they cannot be distinguished one from another.

Mr. Walton has made this drawing from among the rocks of the Riffelberg (at a point of view slightly to the west of that selected for Bisson's well-known photograph), whence the mountain is seen to rise on the other side of the deep chasm through which the Gorner Glacier winds on its way from the snowy amphitheatre under the cliffs of Monte Rosa and the Lyskamm to the meadows of Zermatt. It is a short time after sunrise on an October morning; the great pyramid, whose eastern face is usually a precipice of bare rock—rusty red, olive-green, and dull grey—with here and there a snow couloir, whose surface, scarred with falling stones, does but make the cliffs look grimmer, is now vested in all the pure beauty of fresh-fallen snow. It may be seen thus, though rarely, in summer after unsettled weather, but only by the early riser; for the light flakes melt quickly away under the beams of the morning sun. The effect is almost startling when the clouds, which a day or two before enveloped the mountain, roll away, and, instead of dark cliffs, reveal a pyramid of glittering snow. The sun is not yet high above the horizon, for the orange glow has scarce faded away from the unclouded summit, and the rose of dawn yet purples the mists which linger on the lower snow-fields. Piercing these, a ray of light glances upon the névé of the Furgge Glacier, which, broken here and there by blue chasms into tower-like séraes, gleams softly through the haze.

It is impossible to look long on this mountain without speculating on the forces which have shaped a form so strikingly bold. It consists—and to this much of its apparent strength is due—of slightly-inclined beds of rock, having a general south-westerly dip. These, although in reality the representatives of the older chalk formation, consist of bands of quartz, mica-schist, and chlorite-slate. According to Mr. Whymper ("Proceedings of British Association, 1865," p. 76), the middle and larger division of the peak is chiefly chlorite-slate, and the lower mica-schist, with seams of quartz; while all three rocks are found in the upper. The prevailing colour of the first of these divisions is grey, of the other two dull red. We cannot conceive of any convulsive throes which could produce so monstrous a birth as this peak. Mighty forces must doubtless have operated in order to rear these beds so far above their ancient level, and crumple them, in places, like so much paper. Perhaps, also, the intense glow of subterranean heat has aided in changing the soft sea ooze into hard slate; but still, the longer we gaze, the more we feel persuaded that these forces must have acted slowly and gradually. Though I cannot think that ice and stream have played so large a part in fashioning the surface of the earth as some geologists would have us believe, yet I can conceive of nothing which could carve out the uprising strata into these strange forms so surely as the force of ocean currents and the carking tooth of the restless waves. Wind and frost, rain and ice, torrent and glacier, have no doubt wrought; but it has been to finish that which was rough-hewn by the sea,—the sculptor's rather than the quarryman's task.

The steep cliffs of the Matterhorn for several years defeated every effort to scale them; and a fearful accident, as all will too well remember, marred the success of the first party that gained the summit. Though the details of that story are too unromantic for these pages, this notice will hardly be considered complete without a glance at the various attempts which were made to climb the mountain. The first trials were made from the head of the Val Tomanche, whence the third of the above mentioned ridges seems to offer an obvious route to the foot of the final peak. A notch in this ridge, lying in the depression between the summit and the snow-slope on the right of the picture, was gained without difficulty; but scaling the ridge itself was found to be no easy task. The first attack was in 1860, by Professor Tyndall and Mr. Hawkins, and between that date and 1864 another attempt was made by the former gentleman and several by Mr. Whymper, who on one occasion nearly lost his life by a slip on the lower part of the mountain. The obstacles, however, were so great, that neither of these mountaineers ever succeeded in getting higher than a point about 700 feet below the summit. Gullies slippery with ice had to be climbed, narrow ridges crossed, projecting pinnacles rounded, steep crags scaled; each difficulty overcome did but lead to a greater; and the peril was increased by showers of stones, which, owing to the dip of the strata, constantly sweep this face of the mountain. Taking this fact into consideration, Mr. Whymper determined to attempt the unpromising eastern face, where at any rate falling stones were not to be dreaded, and the projecting strata would afford a surer, though, perhaps, a narrow footing. This route had, indeed, been previously attempted by Mr. T. Kennedy, in January, 1862; he, however, had only hoped for success when aided by the snows of winter; and had failed, as might have been expected, in consequence of the cold and the shortness of the days. Mr. Whymper's party encamped for the night at a height of about 11,000 feet, on the ridge seen in the picture on the right of the Furgge Glacier. Next morning they climbed without much difficulty the eastern face of the mountain, as far as the shoulder above which rises the gable-end of the final peak; keeping generally on or near the same right-hand arête. Here they were obliged to proceed diagonally along the northern face, and found (near where a few dark specks of rock are seen in the picture) a dangerous slope of smooth rock, partly glazed with ice. After passing this, they gained the summit without further difficulty. This is a roughly level ridge from 350 to 400 feet in length, so thickly strewn with fragments of quartz, mica-schist, and chlorite-slate, that the live rock is completely concealed. On their return over the above-named slope, the fatal slip took place. On the prudence of the undertaking opinions have been, and will be, different. There can, however, be but one of the heroism of the survivor and those friends, who disregarded fatigue and danger, that the last words of Christian hope might be spoken over the lifeless bodies which lay on the snow-slopes of the Matterhorn Glacier.









U.S. GEOLOGICAL SURVEY



## THE WEISSHORN, FROM NEAR ST. NIKLAUS.

ALL who have crossed the Gemmi Pass from Kandersteg to Lenkerbad on a clear day will remember that, among the sea of snowy peaks which opened so suddenly upon their view as they breasted the last bank above the silent waters of the Dauben See, one glittering pyramid instantly attracted their eyes, by the extraordinary grandeur and beauty of its form. This is the Weisshorn—the white peak—worthy rival of the spotless maiden of the Bernese mountains, whose snowy cone rises from vast shelving fields of glacier above the other giants of the Pennine chain, which appear to have ranged themselves in due subordination on either hand. Local guides—men commonly of one idea, and that a wrong one—insist upon pointing it out to unwary tourists as Monte Rosa, probably being so persuaded because it looks higher than any of its neighbours. Here, however, as often, appearances are deceptive; for, though a veritable giant, being 14,804 feet above the sea, it is, in reality, a little lower than the highest peak of the great snowy cluster called the Mischabelhörner, on its immediate left, which rises almost exactly opposite to it on the other side of the Nicolai Thal, and forms a kind of gateway to the Alpine fortress enclosing Zermatt. Monte Rosa is indeed visible from the Gemmi, but it is only represented by two little peaks with a connecting curtain of snow, which in the far distance peer over a lower range between the Weisshorn and Mischabelhörner. From many points on the north of the Rhone, these two mountains are very conspicuous; and the former is a beautiful object from the upper part of the valley itself.

The Weisshorn stands between the Val d'Anniviers and the Nicolai Thal, a little back from the head of the Turtman Thal. There cannot be a hotter description of its topography than that given by the Rev. Leslie Stephen in the "Alpine Journal" (vol. I. p. 40). "Three great ridges descend steeply from the summit, like the claws of a gigantic tripod. Two of these are nearly in a straight line, one running approximately north and the other south. The third ridge is nearly at right angles to these two, running almost due east. In the compartment between the northern and eastern spurs lies the Bies Glacier. It is connected with the summit by long and extremely steep slopes of snow. In the compartment, again, between the eastern and southern spurs, lies the Schallenberg Glacier. Ranges of steep rocks rise round the whole basin of this glacier, except in one or two places where they are interrupted by couloirs of snow. Finally, on the western side the mountain presents one gigantic face of rocky precipice. The northern spur forks out at a considerable distance below the summit into two branches enclosing the Turtman Glacier."

It may be supposed that a mountain so beautiful in its form, and so well situated for a panoramic view, soon drew the attention of Alpine travellers. Both the northern arête and the south-eastern face were unsuccessfully attempted in 1859; the one by Messrs. W. and G. S. Mathews, the other by Mr. Stephen and a party of friends; and, in 1860, another attack by Mr. C. E. Mathews upon the same face failed in consequence of the dangerous state of the snow. The following year Professor Tyndall, conducted by the late J. J. Bennen of Lax, assailed the eastern arête, having mounted to it from the Schallenberg Glacier; and after a long and difficult climb, gained the summit. The expedition is related in his pleasant volume entitled "Mountaineering in 1861," with an illustration by Mr. Whymper, from Mr. Walton's drawing of the mountain as it appears from the Riffelberg. In 1862 Mr. Stephen reached the summit by following nearly the same course as Professor Tyndall. From both accounts, the expedition is evidently one of great difficulty, such as only a very skilful mountaineer could be justified in undertaking; and the precipices are said by the one writer to be "frightful," by the other "appalling." The summit is rather singular: Mr. Stephen states it to be, with, perhaps, the one exception of the Wetterhorn, the most beautiful that he knows:—"It is formed by three of those firm and delicate edges which can only be modelled in the mountain snow, uniting to meet in a mathematical point. The three faces of the solid angle correspond to the three sides of the mountain." The view was wonderfully beautiful; the Alpine world lay at his feet, "from Monte Viso to the Jura, and from the Bernina to Mont Blanc." The highest rocks are said by Professor Tyndall to be "granite or granitic gneiss." They are doubtless the latter; for the wild ridge to the south, in the neighbourhood of the Trift-Joch, is composed of a very beautiful variety, pale greenish-grey laminæ enveloping pink masses of felspar.

Not the least interesting feature of the neighbourhood of the Weisshorn is the extraordinary depth of the gorge which severs it from the Mischabelhörner. The traveller bound for Zermatt finds the sides of the valley gradually closing in upon him, and contracting till it becomes scarcely more than a ravine, at the bottom of which rushes the Visp torrent. The snowy peaks, of which glimpses had from time to time been caught, are now almost wholly concealed by their steep buttresses, till, on reaching the village of Randa,

the valley begins to open out again a little. Opposite to the village, just across the river, rises an enormous wall of ice-worn precipices, scamed here and there by torrents, which are crowned by a curtain of shattered glacier, above which appear the steep slopes of the north-eastern face of the Weisshorn itself. It is a view of extreme grandeur and singularity; the cliffs are so precipitous that one marvels how the glacier can possibly cling to them, and feels a certain sense of relief when past the tract which they would sweep in their descent. In fact, and not only in fancy, this glacier is a veritable sword of Damocles impending over the village; large masses have more than once broken off, and wrought fearful destruction by their fall into the valley. This has occurred four times in the past two hundred and fifty years, and on the last occasion (Dec. 19, 1819) Randa was almost wholly destroyed, not by the icy masses of the avalanche, but by the blast of air which its fall created. The following is an extract from Berlepsch's account of the calamity (*The Alps*, p. 217, Eng. Tr.):—"Horses and stables were thrown far away overturned; millstones were found a cannon-shot from their former position; roof-beams were thrown a quarter of an hour higher up into the forests; the point of the church tower stuck inverted in a meadow like a wedge driven into the ground; cattle lay crushed after being carried several hundred yards through the air; and near a hundred houses were injured. Strangely enough, only a few persons lost their lives in the catastrophe."

To appreciate properly the grandeur of this face of the Weisshorn, one must ascend the slopes of the Mischabelhörner for a thousand feet or so above the village of Randa, for the foreshortening produced by the extreme steepness of the mountain conceals very much of its snowfields, and diminishes the height of the actual peak. In fact, I do not remember any instance of a gorge which can be at all compared with this. A line drawn from the summit of the Weisshorn to that of the Dom would pass almost exactly over Randa, and be a little more than five miles and a half in length. The village itself is 4,740 feet above the sea; hence the difference of level between it and these peaks is more than 10,000 feet,—very nearly two miles, and the average slope of the Weisshorn not very much less than one of 45°. On gaining such a position as that which I have mentioned, it will be seen that between the broken glacier fringe which crowns the precipice and the snowy crest above, there is a vast semicircular basin in the very heart of the mountain, enclosed by the great spur which connects the peak itself with the Bruneggorn; this is occupied by the névé of the Bies glacier, and over it lies the route to the Bies-Joch, a difficult pass leading from Randa to the Turtman Thal.

In the accompanying sketch we see the summit of the mountain rising above the Bruneggorn. Between the two peaks lies the basin of the Bies glacier, and the right hand arête is a part of that which forms the watershed between the Nicolai Thal and the Val d'Anniviers, and bifurcates to enclose the head of the Turtman Glacier. The point at which this forking occurs is itself a considerable peak, rising to a height of 13,651 feet above the sea. It is, I believe, concealed by the cloud on the extreme right of the picture; on the left, the ridge by which the summit has been reached is seen considerably foreshortened; hence the steep slopes of snow between the two arêtes fall down towards the head of the Bies glacier. The precipices underneath are above the Nicolai Thal, and are those up to which the traveller gazes on his journey between St. Niklaus and Zermatt. This will, I believe, be found to be a correct sketch of the topography of the picture, but owing to having never seen the mountain from exactly this point of view, and to the unusual curves in the line of its northern arête, I may have wrongly identified some of the points. For the rest, the picture tells its own story; the mists cling to forest and cliff in the valley, and still lie on the snow-fields, but the higher peaks are clear, and, together with the light curls of mist that are steaming up from below, catch the last flush of the setting sun.









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## THE

# AIGUILLES VERTE AND DU DRU, FROM NEAR CHAMOUNI.

THE great charm of Chamouni to all lovers of the Alps is, I believe, the singular wildness of some of the scenery of its Aiguilles. In many respects it is undoubtedly inferior to several of its rivals. The valley is a long level trough, leading up to the comparatively low pass of the Col do Balme; the principal peaks in the neighbourhood are either invisible from the village or only seen crowded together in profile; hence a feeling of disappointment is caused when it is first approached, which is not even removed by the consciousness that one snowy hump is nearly 13,000 feet above us, and is the highest point in Europe; for from Chamouni itself Mont Blanc appears in, perhaps, its least impressive aspect. This feeling, it is true, generally wears off after a few excursions; especially if it be carefully remembered that the one thing to be especially aimed at in them is to get the valley as far as possible out of sight, though not, indeed, out of mind. It is not until we gaze on Mont Blanc from some spot directly opposite to it, and about level with its middle, that we begin to appreciate the majesty of its vastness, and the solemn grandeur of those icy robes which flow down in countless folds and curves from its snow-crowned head and outstretched arms. Still the most striking features of the scenery of Chamouni are rather to be found among the Aiguilles on the east of Mont Blanc, which form a vast amphitheatre around the wide expanse of snow and ice which finds an outlet through the comparatively narrow gorge occupied by the Mer de Glace. No better examples of the scenery of the "Slaty Crystallines" can be found in the districts generally accessible to travellers; for, in my opinion, they are only surpassed, and that but little, by the wild peaks which environ the Pelvoux. To see them to perfection they should, as far as possible, be isolated from each other, and, as in this sketch, framed in by some bit of forest scenery; for the long ridge on the south side of the valley, that rises, bristling with innumerable pinnacles and flame-like points of rock, above many a league of stone-strewn glacier or wild waste of fallen blocks, is too oppressive in the solitude of its barren crags and the desolation of its ruinous slopes. But let these Aiguilles tower over some mountain shoulder,—here dark with pine woods, there bright with sunny alps,—above a foreground of aged firs and of forest plants, half masking boulders stained with gold and crimson lichens, the horror of their loneliness is alleviated, and, instead of saddening, they delight beyond expression.

The peaks represented in this sketch are two of the most strikingly beautiful in the whole Alpine chain,—the Aiguilles Verte and du Dru. Although here they appear to be nearly equal in height, this is not really the case, the former overtopping the latter by a thousand feet. The highest point in a long spur, which, running north-west from the watershed of the Pennines, separates the glacier of Argentière from the basin of the Mer de Glace, the Aiguille Verte forms a huge bastion of the Alpine fortress, and is propped up by three buttresses, one of which falls down more rapidly than the others. These two run out west and south, and terminate, respectively, in the peaks of the Dru and Moine. The latter of these helps to enclose the great basin of the Taléfre glacier, so well known at Chamouni for its oasis, the Jardin. The long couloirs of snow and the broken masses of ice which sweep down towards the Argentière glacier, on the north-eastern side of the Verte, have formed the subject of a large oil-painting by Mr. Walton. In the present sketch, we are only able to catch the edge of these, as it gleams in the morning light. In order to see the Verte in its full magnificence, it is necessary to ascend to some point a few miles to the north or north-east of Chamouni; otherwise, as in this sketch, it is dwarfed by the Dru: this, from the north, appears as a large hump which rises out of a rocky spur, and from some points is apt to mar the beauty of the Verte. Unattractive, however, as it may then occasionally seem, all is changed when it is approached from the west; there it towers aloft like some vast cathedral spire, its smooth cliffs rising 5,000 feet above the icy stream of the Mer de Glace—one of the grandest objects in the whole chain of the Alps. De Sanssuro says quaintly of it—"Ses côtés semblent polis comme un ouvrage de l'art, on y distingue seulement quelques aspérités et quelques lentes reetilignes, très-nettement tranchées. Si, comme je l'ai dit, quelques-uns de ces pics peuvent être comparés à des artichaux composés de grands feuilletés pyramidaux, ce cône seroit le cœur d'un de ces artichaux."—(*Voyages*, § 612.)

The topographical features of the two Aiguilles are not very easily distinguished in this sketch; for the sun, which is fast rising through the haze over the jagged crête on the left of the peaks, is flooding the air with a misty light, which deprives the unilluminated parts of the mountains of their solidity, and makes

the Verte and Dru look like twin peaks only a few yards apart. Still, what would be gained in distinctness later in the day, would be lost in beauty; for there is an indescribable charm in the unwonted softness of these rugged crags, like the rare smile on the face of a thoughtful man. A gleam on the mountain-side shews that the sloping rays are already catching the snows of the hanging glaciers above the Chapeau; though the cloud, that during the night has been melting into rain, still lingers above the pines, whose serried ranks are thickly marshalled upon the flanks of the Aiguille de Cbarmoz; the beads of water are beginning to sparkle on the grassy pastures below the cliffs of the Blaitière: and the mists will soon be steaming up from the firs that cling to the steep slopes of the Brévent.

It may be interesting to add that the Aiguille Verte was ascended for the first time on June 29, 1865, by Mr. Whymper, with Christian Almer and Franz Biener as guides, by starting from the Glacier de Taléfre, and striking the crête which leads from the summit to the Aiguille du Moine. On July 5th following, another party, consisting of Messrs. C. Hudson, G. Hodgkinson, and T. S. Kennedy, repeated the ascent by a somewhat different route. The Dru has not yet been climbed, and probably will remain untrdden; for it appears to be even more difficult, and is of course less attractive, than its taller neighbour.











## CREVASSES ON THE MER DE GLACE.

FEW days in Alpine travel leave a more vivid impression on the memory than that on which we stand for the first time upon a glacier, and find how inadequate all our previous conceptions of it have been. For in this matter photography cannot give us much assistance, because, though form is of course rendered correctly, and even (in the case of glass-slides in the stereoscopo) texture is almost perfect, colour is wanting, and this defect robs the icy chasms of their chief and most awful beauty. Therefore this series of sketches would hardly be complete without an endeavour to represent some of that scenery, which to so many is the principal charm of the Alps; and the Mer de Glace has been appropriately chosen for the illustration, seeing that it is not only classic ground in the history and theories of glacières, but also the one which is first visited by many tourists, and therefore, more than any other, recalls sunny and pleasant memories.

No one can gaze for long upon these streams of ice without feeling some curiosity about their nature and history; this desire has prompted many interesting investigations, and given rise to many controversies on "The Theory of Glacières," which even now can scarcely be regarded as finally settled. A glance, brief and partial, at these, in which so many names illustrious in science have figured—De Saussure, Agassiz, Forbes, and Tyndall above all others—will not, I hope, be out of place or uninteresting as a companion to this picture of one of the most striking bits of glacier scenery. Dwelling then more especially upon those parts of the subject which the picture before us suggests, the material of the glacier naturally first demands a word of explanation. It is, of course, ice; but still not quite identical with that which covers our ponds and rivers in winter—being not so much frozen water as frozen snow. The material of which these blue walls are constructed, solid though it now is, was once light snow, eddying in the blast that swept the mountain summits.

To render the process by which a glacier is formed more intelligible, let us go back in imagination to the time when the Alps, with lowlier peaks or under a warmer sky, were without glaciers, and the "Monarch of Mountains" himself was in summer without his vesture of snow. In the heart of the Mont Blanc chain there is a vast amphitheatre or basin surrounded by some of the loftiest peaks in Europe, whose entrance is guarded by the sharp precipices of the Aiguilles de Charmoz and du Moine, each rising to a height of about eleven thousand feet. This, however it may have been altered in the lapse of thousands of years, must even then have been a deep valley in which the winter snow would accumulate. At length there came a time when these drifts no longer disappeared during the summer heat; and thus a permanent snow-bed was formed, such as may be seen in many parts of the higher Alps. The surface of this was melted by the sun; and the moisture thus formed, in trickling through the subjacent mass, converted it into a coarse ice, full of bubbles of enclosed air, and therefore white and opaque, more like porcelain than glass. As fresh snow was heaped on this from above, the increasing weight would also aid in solidifying the lower layers, and at last, on shelving ground, cause the whole to slide gradually downwards. Such then is the commencement of a glacier; and as time goes on, the accumulating mass behind presses on that in front, squeezes it through narrow straits between walls of rock, pushes it over the edges of cliffs, and sometimes even forces it a little way uphill. Whether ice may be regarded as a plastic body is disputed; this much is certain, that, if at all, it is only so in a very slight degree. Hence the strains, to which the glacier is subjected by the inequalities of its bed, rend it asunder, forming those yawning chasms and shattered ridges which are represented in the picture. Its surface, where the underlying rock is smooth, is hardly fissured at all, and forms "a silent and solemn causeway, paved, as it seems, with white marble from side to side;" or is divided by narrow transverse clefts, which, except that they curve back and ramify somewhat towards the edges, are almost as regular as the segments on a caterpillar's back. So it is, to a remarkable degree, on the Finster-Aar Glacier, and on that part of this very glacier, which is more especially called the Mer de Glace; where, however, the ice-stream passes over an uneven bed, it is at once broken up by innumerable gashes, which from their French name are called crevasses. If this happen in the upper part of the glacier, where the ice is less solid, and the solar heat less powerful, as, for example, in the celebrated fall of the Glacier du Géant, it breaks into great blocks and towers, called *séraes*; just like fissures in dry mud; but if lower down, it is riven and weathered into shattered ridges and fantastic pinnacles, like those in the picture; as, for example, in the Glacier des Bois beneath the Chapeau. Here the glacier is constantly perishing; the heat melts its surface, and the collected waters scoop out channels in the ice-slopes

till they plunge at last into some chasm; while from time to time the pinnacles topple down, and with a hollow roar are engulfed in the abyss below.

By cautiously approaching the verge of one of these yawning fissures, it is often possible to gaze into its awful depths. The walls, as in that here depicted, are an exquisite blue, tinged here and there with green, which becomes more and more intense as they descend. In the upper part of the glacier, where the ice is less compact, the green predominates, and the walls of the great séracs are often as though they were sheets of chrysoprase; but as the enclosed air is gradually expelled by pressure this colour gives place to the blue tint. The upper surface, where roughened like a coral-bed by the alternate action of heat and frost, is a dull white, on which the myriad facets of night-born crystals glitter each morning in the smilght. Here and there brown streaks and stains are seen, formed by the dust and shattered stone which are showered upon the ice-stream from its rocky walls. In this way numbers of blocks of all sizes are transported, which, if not engulfed in the crevasses, or ground to powder between the glacier and its bed, form stony ridges on its surface, called moraines, and are at last piled up in vast mounds at its termination. It will, moreover, be noticed that the finest rubbish lies in several places in tolerably regular bands, which are sometimes nearly parallel, and that in the walls of the chasms a bedded or streaky texture is in many parts apparent. This is what is called the 'veined structure' of glacier ice. On examining these places, the ice will be found not to be uniform in texture, but to consist of irregular layers, from some of which the air has been more completely expelled than from others, thus causing them to be a purer and deeper blue. As these are also more compact than the other beds, they resist longer the action of the sun, and so form small ridges on the weathered surface of the glacier, which are brought into strong relief by the dust gathering in the furrows between them. Sometimes the lines thus produced are so regular that the glacier appears for a considerable distance as though it had been ruled by an engraver's burin. Professor Tyndall considers this structure to be the result, not of stratification, like the beds so conspicuous in the séracs of the névé, but of pressure, and to be analogous to the cleavago common in slaty rocks. For an elaborate and most interesting discussion of this phenomenon, we must refer our readers to his "Glaciers of the Alps." His explanation is not universally accepted, but the arguments in its favour certainly seem very weighty. It is an undoubted fact that pressure can produce a structure of this kind in amorphous bodies—as in iron, paste, and even in the cardboard mount of the drawing which now lies before me; so that there does not appear any valid reason why it may not have similar effects upon ice.

These are the principal features of a glacier which are exhibited by this sketch; for a fuller discussion of them, and of many other interesting phenomena, I must again refer to the work named above, and to the "Travels through the Alps of Savoy," of Principal J. D. Forbes, the two most delightful books of Alpine Travel which have been published in this country. In them, and in others therein mentioned, the reader will find the 'dilation,' 'viscous,' and other theories of glacier motion (which I have, for want of space, refrained from discussing here), fully stated by the principal supporters of the two which now obtain the most general acceptance.







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## THE GLACIER DE TRIENT.

HOWEVER dreary the day may have been, fail not to be on the watch at the hour of sunset. There is often then a revelation of beauty, almost awful in its unearthly radiance. All the livelong day there have been the cloud and the rain; the chilly mist shrouding everything; blankly impenetrable, though the eye be strained never so much; and now the last hour is at hand, and the unsatisfied longing for more light seems doomed to become a hopeless craving. Suddenly there is a far-off glimmer in the clouds; another now, and yet another; then through the parting mists some snow-sprinkled peak shines forth, towering and imminent. Yet a little while, and the veil is rolled away. There rise splintered pinnacles and seamed crags, slopes of snow and cliffs of ice, not stern and hard, as often in the noontide heat, nor black with scattered ruin of fallen stone; but bathed in an effulgent flood of light—ruddy rocks and blushing snows. The mists sink earthward among the pines at their forest-clad feet, or curling lightly heavenward are “kindled into sunny rings.” Surely the everlasting hills are not the least suggestive pages of that picture-book which an Almighty hand has traced for His children’s teaching.

It was at an hour such as this that the picture was painted. The mist, streaming up from among the trees, or lying thick in the bed of the valley, tells that every branch of each leafy spire of pine is heavy with clinging water, and every blade of grass by the swollen torrent’s side is beaded with the diamond drops of rain. But yet this mist is not as it was when it wept its heavy showers all through the afternoon, and the cold blast ever and anon rushed down from the glacier. Then it was an opaque shroud, now it is a transparent veil. Gaze steadily through it, you will see that it *hides* nothing. The eye can trace the valley winding far away, and the clusters of pines scattered over the slopes that stretch up to the foot of the glacier.

A surprise similar to that of which I have spoken greeted me one summer in this very neighbourhood. We had toiled through a dense fog up to the top of the Buet, and, after long waiting there, had been obliged to rest content with the view of the dark crags of the Aiguilles Rouges, and an occasional glimpse of peak or glimmer of snow amid the clouds that hid the chain of Mont Blanc. As we descended the gorge of the Eau Noire, we turned aside, as every one should do, to visit the Cascade de Poyaz. While standing above the fall I happened to glance down the valley: there, perfectly framed by its rough sides, rose the Aiguille Verte all glowing with sunset colours. That one view was enough to compensate for all the disappointment and dreariness of the day.

The axis of the Mont Blanc chain, at the point where the ridge of the watershed between the Rhone and the Po drops down so rapidly from the Mont Dolent to the Col Ferrex, turns sharply to the north, and throws out a great spur, studded with several very high peaks, the last of which is called the Aiguille du Tour. From the immediate neighbourhood of this three glaciers radiate: one, which bears the same name, descending into the valley of the Arve; another, called the Glacier d’Orny, draining into the Dranse near Orsières; and the third, the Glacier de Trient, giving rise to the torrent which joins the Rhone at Vernayaz. These two glaciers rise from a common snowfield on the eastern flank of the Aiguille du Tour. The former of them is in the favourite line of descent from the Col du Tour; but the latter is rarely trodden by mountaineers. It descends into the head of the glen which is crossed on the customary route from Chamouni to Martigny, and the two roads by the Col de Balme and the Tête Noire unite at the little village of Trient, about an hour’s walk from the foot of the glacier. The path from the former winds down among the pine woods on the right of the picture, which was taken from a point on the slopes near but above the little inn on the Tête Noire. The present glacier is but the dwarfed and shrunken remnant of what once has been. Time was when it flowed all down the valley of the Trient, and, plunging over the rocks through which the torrent still rushes, deep down in its narrow gorge, joined itself to the glacier of the Rhone. The “ridges of the rocks smoothed into long dark billowy swellings, like the backs of plunging “dolphins,” attest the resistless force of the ice-streams of the Glacial age; and the huge grey blocks that now lie scattered among the vineyards of Monthey and the forests of Jura, whether tumbled there from the retreating glacier or dropped from stranded ice-rafts, were once splintered from those granite crags that are all ablaze with the setting sun.

I cannot quit this valley without reminding my readers that it is the theme of one of the grandest, and yet saddest, passages in “Modern Painters”—that on the mountain gloom. If by any chance they are not acquainted with it, they will, I think, thank me for calling their attention to it, although, when read, its mournful pathos may render them less light at heart than they were before.















