Killar, as the Circassian was named, had known how to profit by the morning's frost. He had crossed the snow long before us, and when M. Lenz reached his highest point, Killar was already on his return from the summit.' Whether Killar really did or did not attain the highest point, and whether the latter was not, indeed, hidden by the 'mists,' which are a weak feature in the evidence, he, at any rate, received the promised reward of 400 roubles, and appears to have enjoyed locally the reputation of having succeeded. In any case, however, the recent ascent by our countrymen and F. Devouassoud is the first that has been effected by any but a native mountaineer.

The so-called 'ascent' of Kazbek by Herr Moritz Wagner in 1844, of which no one had heard at Tiflis, turns out, on investigation, to be still more utterly the result of the imagination of the writer in 'a German newspaper.' I had good ground for refusing to believe that, if it had taken place, it could have been unknown to Herr Wagner's countryman Dr. Radde, as well as to General Chodzko and other first-rate authorities at Tiflis, which Mr. Freshfield and his companions found to be the case; and my friend Mr. F. E. Blackstone, having kindly examined for me at the British Museum Herr Wagner's own narrative of his travels in the Caucasus ('Der Kaukasus in den Jahren 1843 bis 1846,' von M. Wagner. Leipzig: Arndtsche Buchhandlung. 1850), has set the matter finally at rest. He informs me that, in the volume in question, there is not the least foundation for the statement that he ascended Kazbek. Herr Wagner writes:—'During the absence of my travelling companions I visited the nearest environs of Kazbek, and ascended this famous mountain *to the lower limit of eternal snow* (*bis an die untere Grenze des ewigen Schnees*).' The walk to the point selected by our countrymen for their bivouac is well described, and the narrative then proceeds:—'There, from a point nearly 11,000 ft. in height, an unimpeded view was obtained over the whole glacier region, &c.,' with which that from the hut on the Aar glacier is compared. It is like the case of the French tourist who had 'fait l'ascension du Mont Blanc,' but, upon being cross-examined, naïvely admitted that he had been 'pas *tout à fait* sur la cime, mais jusqu'au Montanvert.' I am, dear sir, yours very faithfully, F. F. TUCKETT.

THE ALPINE REGIONS.*

It is but a few weeks since the genuine lover of the Alps had an opportunity of being thoroughly disgusted by reading in the 'Times' an account of certain proceedings in the Valais on the occasion of extending the new railway from Sion to Sierre. A party of the most preposterous Paris cockneys, with a number of representatives of the press, went to Sierre to celebrate the event, and would have ascended the Gemmi if they had not had the misfortune to make their guides (as they were pleased to call the mule-drivers) so drunk that very few could be induced to go beyond Leukerbad. In the speeches

* *The Alpine Regions of Switzerland and the Neighbouring Countries.* By T. G. Bonney, M.A., F.G.S., &c., Fellow of St. John's College, Cambridge.

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at Sierre and in the newspaper articles which followed, the true commercial spirit was supreme; and no one seemed to have any idea of the Alps except as a disagreeable obstruction in the way of travellers into Italy—an obstruction which doubtless ought never to have existed, but was at last to be happily disposed of by the exertions of a speculative railway company. Fortunately for those who do not wish to see the splendid Simplon road made into a railway, and who are still well pleased to have as much time as possible to contemplate the magnificent scenery on both sides of the pass, the very slow advance of the company even on level ground will be reassuring.

To those who, instead of looking upon the mountains as 'cold obstructions,' have learned by experience to regard every feature of them with affection, and to those who as yet know but little of the subject, Mr. Bonney's book will be equally welcome. The novice will find an abundant collection of useful information, and the accustomed mountaineer may enjoy going again in these pages over many a scene of his former wanderings. It is strange, moreover, if he does not find something new to him, for Mr. Bonney's experience has been undoubtedly large. In his preface he informs us that he happens to have a tolerably general acquaintance with the whole chain, having in the course of ten journeys wandered, usually on foot, over every Alpine district included between lines drawn, one through Genoa westward and the other through Venice northward; during which he has crossed about eighty mountain passes, explored a good deal of rarely-visited country, and had, as he believes, a fair view of every important peak of the Alps, from the Viso to the Terglou. After this amount of wanderings he says that in the present volume he has endeavoured to put together 'notes which may serve not only to give a general idea of the Alpine regions to those who cannot travel, but also to be useful as a handy book to those who are purposing to visit them.'

'The two points,' he observes, 'that I have kept before me in writing this book are:—(1) That it should not be confined to any single district or country, but should endeavour to deal with the Alps as a whole; restricting myself only, where I could, to the properly *mountain* regions: (2) that it should as far as possible touch upon all the principal points of interest connected with them, and aim to be popular and general rather than exhaustive.'

In this we think that Mr. Bonney has succeeded; and we lay down his book with the sensation of having been for the time on the summit of some 'specular mount' from which, if we could not see all the kingdoms of the earth, we could at all events behold the whole Alpine region at a glance. The generalisation of so extensive a subject is not acquired without long and attentive observation of the particulars; but great is the reward of those who strive hard to attain it. The intelligent mountaineer finds his sense of pleasure increasing daily in proportion to his experience. If a man who is perfectly unacquainted with the nature of a mountain-land could be suddenly placed upon the summit of Monte Rosa or the Finsteraarhorn, and thence see the region of the Alps for the first time in his life, his appreciation both of the grandeur and the beauty of the scene would be as nothing compared with that of the

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experienced wanderer, who knows of a thousand details which are lost in the obscurity of vastness around him. The practised eye of the latter recognises old mountains with new faces, and helps memory to recall the hidden beauties of each. Yonder little peak, a mere speck in the panorama, is to him a noble mountain the ascent of which once cost him a long summer's day of pleasurable fatigue, and from the top of which he looked wistfully through his telescope at the still greater peak on which he now stands, wondering if haply it might some day be his crowning fortune to surmount it. A small patch of white on the side, hardly visible by reason of the distance, is a vast slope of ice on which he remembers to have crept upwards for four or five hours while a sturdy guide cut several hundred steps before they got to the top of it. He sees in another direction what looks only a rather rougher piece of snow than its neighbours, and knows that it is the upper ice-fall of the glacier, a mass of tottering blocks and pinnacles rising out of deep blue abysses, such a vast and perilous net-work that with the best guides in the Oberland he had been compelled to beat a retreat. A dull greenish patch on the mountain side is a beautiful and wide-spreading Alp where the cows can scarcely eat a mouthful of grass without picking up a bunch of sky-blue gentians or trampling upon sheets of white crocus and lilac soldanella. His eye looks down a valley stretching twenty miles away from the precipices at his feet, and that which appears to an ordinary observer nothing but a dark and somewhat monotonous belt is instantly transfigured by his memory into a land of glorious forests intersected by a hundred streams, rushing downwards under the shade of pine-trees. and washing the feet of mossy boulders, among which he has often sought and joyfully found tall lilies and fair spikes of pyrola, rosy cyclamens perfuming the air, purple primulas festooned about the rocks, and, last but not least, the lace-like fronds of *Cystopteris montana.*

The limits of the present volume would not admit of the author being exhaustive upon many branches of his subject, excepting at the cost of excluding the rest; he has, however, looked upon it as a whole, and contrived to say something on most of the matters which are dear to the lovers of mountaineering and natural history combined. He takes his readers about with him in such rapid flights from point to point that they are compelled now and then to pull up as it were for a moment, and steady themselves to the reflection that they are looking over the whole region with one sweep of the eye, and are supposed to have no difficulty whatever about beginning a sentence in Dauphiné and ending it in the Tyrol. He takes them up to heavenly peaks and casts them down into cold pits of subterranean ice; he entices them among slippery places, and then soothes and comforts them in the sweet chestnut-woods of Italy. To one he discourses about birds, beasts, and fishes; another feels himself button-holed about Crystallines and Coherents; and the attention of a third is arrested at the side of a crevasse or upon the brink of a moulin by a lucid description of the phenomenon before him. He has studied the delightful works of Forbes and Professor Tyndall, De Saussure, Tschudi, and Berlepsch; and from a comprehensive view of these and many other contributors to the literature of the Alps, he has

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industriously striven to give a correct summary of what is known at the present moment in each department of his subject.

And what a magnificent subject it is in its entirety! How suggestive of an almost infinite variety of reflections and objects of study, in addition to the multitudinous delights of examining it in person! We confess, perhaps with shame, that the direful tales recorded by some of our friends concerning the squalor, filth, misery, and starvation encountered by the explorers of the Dauphiné Alps, have always kept us at a respectful distance from that particular district of the mountains; and we have been content to look at the Pelvoux from the summit of Mont Blanc; but we can speak with tolerable familiarity of nearly all that is included between St. Gervais and the frontiers of the Tyrol. Peaks, passes, and glaciers, crowded with sunny memories, rise around us as we write: we may truly say, 'happy is the man who has his quiver full of them.'

Here another idea suggests itself. Like the imaginary being of whom Tennyson speaks as

> 'Watching from a ruined tower
> How grows the day of human power,'

so may we, sitting on the topmost rocks of Monte Rosa, wonder at the slowness with which the Alpine glories have come to be appreciated. Read the indolent and pampered writers of the Augustan age, who never spoke of the Alps except with a kind of indignant horror; and with whom the expression of 'horrida glacies' conveyed the only notion which they were capable of entertaining in respect to that which in these later days has become the chosen haunt of European vigour. How great a satisfaction it would be if, with the aid of some witch of Endor, we could call forth the luxurious Ovid, and make him cut steps up a couloir by way of revenge for his opprobrious epithets and scandalous allusions to our favourites! Then came long ages of human stagnation, during which the snows fell, and the avalanches thundered, and the glaciers went on their appointed way, silently but surely gnawing at the ribs of the mighty mountains, and polishing the rocks with ungentle hand, no man heeding them. Conceive the isolation and ignorance of an Alpine peasant in those days, compared with modern times, in which he sees people from all parts of the world, and in which an English traveller does not mind bringing home a favourite guide, and showing him the wonders of the Crystal Palace and a London pantomime.

As the 'stone age' and the 'bronze age' involved considerable periods of time, so did the 'tramping age' advance with exceeding slowness, especially as far as the mountains were concerned. Old Sir John Mandeville, the very prince of liars, who was prepared to swear that he had eaten the fruit of a tree which bore live lambs, and who condescends to inform us that 'he who would go to Hierusalem may go by many ways, both by sea and land,' never hints that one of his routes may possibly be through Switzerland. Then came quaint and curious Tom Coryate, who, in the reign of James I. of England, really did get within the limits of the Alpine region, and who informs us that he walked through a great part of Germany, France, and Italy

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in a single pair of shoes which he afterwards hung up as a trophy in the parish church of his native Odcombe. He must have possessed some of the qualifications of a good pedestrian, but he had evidently a pious horror of the mountains, and only condescended to cross by the Mont Cenis as a means of getting into Italy. Had he not misapplied his talents, he might have been the father of mountaineers instead of dying of a flux at Surat. Scheuchzer, whose 'Itinera Alpina' were reviewed in vol. iii. of this Journal, seems to have been about the first to inaugurate a better feeling. He at all events tried to get up Mt. Pilatus, and honestly admitted that he was beaten by the fatigue. He was a painstaking observer, but he seems in spite of science to have been somewhat credulous on the subject of Dragons. Mr. Bonney devotes several pages to this matter, and may be said to have catalogued the most eminent dragons with considerable care. Among other stories concerning them the following appears to us peculiarly interesting for reasons which we will presently explain. At p. 287 our author records the legend that 'a certain Vietor, a cooper of Lucerne, while out wood-cutting in a forest, lost his way; and being benighted, fell into a deep pit, the bottom of which was fortunately covered with soft mud, so that though sorely frighted and much besmirched, he sustained no present damage from the tumble. Still he was in an evil plight, for the walls of his prison were too steep to be scaled. Upon examining them he discovered sundry fissures in the rock, entering into which in search of shelter, he found himself to his horror face to face with a pair of dragons. In answer to his earnest prayers to heaven, these grisly beasts were not suffered to hurt him, but in this fearful companionship he passed six whole months from November 6 to April 10 nourished only by a certain brackish liquid which exuded from the rocks to which, following the example of the dragons, he applied his tongue. On the last-named day the dragons issued forth from the cave, and one of them flew up to the world above in search of a more generous diet; before the other could follow it, Vietor grasped its tail, and was thus borne up from the pit and landed on the ground above. He thence contrived to find his way home, and in order to record his escape had the portraits of the dragons and himself embroidered on a chasuble which he presented to the church of St. Leodegarius, at Lucerne.' It happens that among the stores of a friend who has travelled extensively in the East, and who, after sketching India from Ceylon to the Himalayas, has lately returned from accompanying the Abyssinian expedition, we have just seen a very interesting Amharic manuscript, illustrated with several highly coloured portraits of distinguished Abyssinian saints, the volume having apparently done duty as a family prayer-book for many years in the highlands of Ethiopia. It contains a brilliant picture of St. George on a white horse killing the dragon, which though grateful to an English eye is nevertheless familiar; but we think that very few of our countrymen are acquainted with the accompanying figure of Tekla Haimanout*, the greatest of indigenous Abyssinian saints. He was however a saint of such might that he converted the devil himself,

* The owner of the book, Mr. William Simpson, has been kind enough to favour us with this copy of the original picture.

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who became a monk for forty days, after which we suppose he grew tired of the life. The monastery of Debra Damo, on a mountain near Axum, was founded by this Tekla Haimanout, and is so situated that those who go to it are obliged to be drawn up by a rope; but the saint was originally raised to the summit by hanging on to the tail of a mighty serpent. There is a singular analogy between these dragon and serpent stories; and there is little doubt of their having some symbolical meaning and a very ancient Eastern origin. Profane sceptics may perhaps say that symbols, like prophecies, are capable of various interpretations; and that these stories are to the mountaineer symbolical of



nothing but the use of the rope, without which neither Lucerne coopers nor Abyssinian saints can expect to ascend inaccessible precipices. Those however who have seen some of the illustrations of Hindoo mythology may remember the forms of Vishnu suffering and Vishnu triumphant: in the one case folded in the coils of a serpent who bites his

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foot, in the other stamping upon the head of the defeated monster. The period of his suffering is, we are told, the wintry half of the year, the time of stagnation; his triumph is the summer, the period of fertilizing heat and growth; and perhaps the odd legend of Vietor being confined with the dragons from November to April may be some stray offshoot from the same idea. For this long digression about dragons we feel that some apology is due: our only excuse to our Alpine friends must be that the animals in question are strictly mountain dragons, both in Switzerland and Abyssinia, and, as such, are not unworthy of their attention.

The progress of mountaineering knowledge was still very slow, and only thirty years after Scheuchzer and his dragons we can hardly be surprised to find a well-armed band of Englishmen, headed by Pococke and Windham, advancing to Chamouni as into an enemy's country. With De Saussure's ascent of Mont Blanc a new era set in, and men began at last to feel a fascination about mountains which had for ages repelled them with a shiver. It is, however, a curious reflection that so late as 1853 no one had reached the summit of any of the high mountains of Zermatt with the single exception of the Breithorn. The exception is now the rule; and it would be difficult in the whole Alps to find a summit which has not been ascended. The Aiguille du Dru, we suppose, is still unconquered; and, as its proportions are very like those of the cathedral spire at Strasburg, it may perhaps remain so. But, after the Matterhorn, let no mountain venture to boast.

We have remarked that Mr. Bonney's book is a summary of all that he has been able to gather together about the Alps in general, and it would be difficult to find any branch of the subject which he has altogether neglected. But, if he found it impossible to be exhaustive upon so many matters in a single volume, it is still more impossible within the limits of these pages to glance at many of the details. If he is not exhaustive, he is at all events suggestive, and his copious references may induce many a novice to enter farther into the field of Alpine literature, and study the works of De Saussure, Forbes, and Tyndall for himself. The reward will be great. The subject which will be far the most unfamiliar to the public is that which is treated in the chapter on *glacières*. Of the thousands who have either scrambled over glaciers, or looked at them from a respectful distance, very few were till quite lately aware of the fact that ice-caves were to be found below the surface of the mountains in France and Switzerland. Let us select the glacière du Grand Anu, near Annecy. 'Hereabouts,' we are told, 'the limestone weathers into ridges, separated by narrow fissures, like the mountain limestone in many parts of England, the sides of which are richly clothed with holly ferns and many Alpine plants. After about half an hour's walk we came to the mouth of the glacière, which is situated on a bleak rocky plateau with here and there a few thin patches of larch and brushwood. It was certainly a wild-looking place. We were standing at the end of a deep and comparatively narrow chasm: at our feet a steep slope of crag and débris led down to the base of the opposite precipice; on either hand the cliffs descended in a series of walls of nearly vertical rock, with here and there a ledge on which luxuriant ferns had formed a leafy cornice,

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and pine-trees had fastened their roots. In front, in the face of the precipice, was a vast natural gateway, some seventy feet in height, which opened into a dark cavern, whose icy floor could barely be distinguished. . . . . The cavern is circular in plan, about sixty feet in diameter: the floor is solid ice, and slopes gradually down towards the farther end. Owing to the size of the doorway, a candle, though useful at times, is not absolutely necessary. The walls are covered with sheets of ice, transparent as the finest glass, which invest like drapery each prominence of rock. The effect was as if a number of cascades had been arrested on their downward course and instantly changed into ice.' Such is the preliminary description of one of these natural ice-houses, into the inmost recesses of which the author and his friend Mr. Browne contrived to penetrate by dint of much squeezing, struggling, and besmirching. The general experience of cave explorers is that the amount of heat increases: in the case of these ice-caves it would appear that during the winter a sufficient amount of snow enters by an external opening to establish a permanent cold which seldom allows the thermometer to rise much above freezing point. The temperature of the caves was found to be only from 1° to 2° above it, when that of the outer air was 48°.

Passing by interesting catalogues of the most notable storms, avalanches, and landslips, and other phenomena of the high Alps, we must conclude with a few remarks upon glaciers. We have a short, but clear, summary of the history of glacial science, from Saussure and Charpentier down to the discoveries of Professor Tyndall. Mr. Bonney selects, and we think with reason, the Görner glacier as his type. We know of none which, in vastness of space, in the extent of the snow-fields from which it is nourished, in the perfection of its moraine system, and the splendour of the surrounding mountains, can well be compared with it. The experience of many days spent in wandering among its marvels, besides those on which we have had to cross it in various directions when bent on longer expeditions, makes us doubt if the author has done full justice to its surpassing merits. The foot of the glacier, which for many late years was advancing, has come to a check, and it is interesting in a high degree, to see the steady process of the deposition of stones by the retreating ice. Close to it is found an abundance of Alpine plants, conspicuous among which in the month of July are the Martagon lily and *Stipa pinnata*, the feathered awns of which cluster within a few yards of the ice. A few easy scrambling steps lead us on the glacier, and nothing in the world is easier than to follow it upwards for an hour or two; but when Mr. Bonney says that from this point 'it will be a task of more than one hour to thread the icy maze that cuts us off from the upper plateau of the glacier,' we confess our astonishment. The icefall of the Görner glacier is formidable in the highest degree, and we thought we had heard that Mr. Morshead, perhaps the most agile of extant pedestrians, had, with the aid of Christian Almer, found seven hours not too much for the enterprise of passing it. We may be wrong, but we should be sorry to undertake to do it in anything like the time indicated. Looking right down upon it from the western precipices of the Riffelberg, we should

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think it quite impassable. Above this, it is comparatively plain sailing, and if we follow upwards in the neighbourhood of the central moraine we shall, in a few hours, be indoctrinated into the sublimest phenomena of a glacier.

The enormous crater-like pits in the ice, some of them large enough to contain a village, form a characteristic which we have seen in no other glacier. They are probably caused by the working of the powerful streams between that point and the base of Monte Rosa, exactly in the same way as extinct *moulins* are found, as Professor Tyndall observed, in front of those in action. An hour or two may be most agreeably spent in tracing the course of these glacial rivers, where the purest conceivable water rushes through the deep azure ravines which it has carved for itself through the ice. On the edge of the medial moraine, directly between the Görnergrat and the Lyskamm, are by far the largest glacier tables that we have ever seen. One is not far short of forty feet in length, and stood last year on such a lofty pedestal of ice, that it was necessary to cut five or six steps upwards before we could touch the overhanging surface of the rock. Scarce a quarter of a mile lower down the glacier, we had in 1866 found one of the great ice-craters filled with water, and forming a beautiful sky-blue lake. The next year the water had passed away by some sub-glacial channel, and left the deep crater almost empty. But at one end of it was a Gothic arch, about eighty feet in height, proportioned exactly like those which support the centre of a cathedral. We reached the base of the mighty arch, and looked into a vault of perfectly clear blue ice, leading to deeper and deeper caverns where the colour became that of the fullest purple, as the eye lost itself in the recesses of the interior.

Those who have enjoyed to the utmost the splendid marvels of the high Alps, must feel a pang of sorrow as they contemplate the possible destruction of their favourite pastime. It is a sad fact that, just as men have come to consider the glaciers as the proper field for a summer holiday, the ice itself has been taken with what may be called a shy fit. The glaciers have for the most part, within the last few years been rapidly retiring. The Rosenlaui glacier has, since we first saw it, so shrunk away from its original beauty and dimensions, that it is now scarcely worth while going to see what has become of the rest of it. The lower Grindelwald glacier has within the last dozen years lost fully 100 feet of its thickness; and at this rate of diminution, another half century would abolish nearly all that is seen of it from the village. It would perhaps be a mere matter of calculation to find the time at which the Jungfrau and the Finsteraarhorn will scarcely be more worth ascending than Snowdon and Moel Siabod. But on behalf of the rising generation we will hope for better things. Meanwhile, if anybody thinks that Alpine science has been already too thoroughly drilled into the public mind, we would refer him to a recent ridiculous letter which the editor of the 'Times' did not think it beneath him to publish, and in which the writer said that a 'puff of smoke,' as it appeared on the mountain, 'raised the cry that the Glacier des Pélérins had burst, carrying with it part of the moraine which had kept it within bounds!'

T. W. H.

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