

SUMMARY OF NEW EXPEDITIONS DURING THE  
SUMMER OF 1865, UP TO AUGUST 9.*Chain of Mont Blanc.*

**GRANDES JORASSES, June 24.**—Mr. Whymper, with Michel Croz, Christian Almer, and Franz Biener, left Courmayeur at 1.35 A.M., and followed the Val Ferret nearly as far as the village of Neiron. They then ascended through forest, succeeded by very smooth glacier-polished rocks, making for the middle part of the tails of the Glacier des Grandes Jorasses, arrived at a small plateau, SE. of Dome des Jorasses, at 8.5, and thence went due north towards the summit—sometimes by the glacier, much crevassed, sometimes by the rocks on the left. The summit of the western of the two peaks was at last gained, at 1.0 P.M., by a rock arête descending in the direction of Courmayeur. The party reached Courmayeur again at 8.45 P.M. Total actual walking, 16½ hrs.

**COL DOLENT, June 26.**—The same party left Courmayeur at 12.40 A.M., ascended to the summit of the Petit Ferrex, thence by the left bank of the Glacier du Mont Dolent to its upper plateau, and then straight up the middle of the glacier to the foot of the snow couloir at its extreme head. They crossed the bergschrund at 8.45, and, ascending by a trough cut by falling stones, reached the top of the ridge connecting the Mont Dolent and Aiguille de Triolet at 10.15. Height, 11,624'. The descent was accomplished by the great couloir at the head of the Argentière Glacier. This was found to be of ice, and its descent occupied 7 hrs. The party got on to the level glacier at 5.35, quitted it at 7.15, and reached Chamouni at 10.10 P.M. Total actual walking, 18½ hrs.

**AIGUILLE VERTE, June 29.**—The same party, excepting Croz, left their bivouac on the upper part of the Couvercle at 3.15 A.M., and mounted over easy slopes of glacier and névé until 5.5, when they arrived at the bergschrund at the base of the actual peak. The rocks immediately below and to the left of the summit seemed to present considerable difficulty; they therefore moved round to the right, and the route that appeared best was by a large couloir, which led from the bergschrund to the arête connecting the Verte with Les Droites, and which struck the arête no great distance to the right of the summit of the former. But as it seemed rather dangerous to ascend the lower part of this large couloir, they went up a much smaller one, still further to the right, and from the top passed into the larger one by crossing the intervening rocks. Following it until it became ice, they then took to the rocks at the left, struck the arête leading towards the Aiguille du Moine at 9.45, and followed it to the summit, which they reached at 10.15, having halted 50 min. on the way. Height, 13,432'. All of the surrounding peaks were free from clouds; they saw Mont Blanc, the Jorasses, Les Droites, Aiguille d'Argentière, the Brèvent, the village of Les Bossons, and many other points; but at 11.0 clouds were beginning to gather in all directions, and they commenced the descent. At 12.0 it commenced to snow, and continued to do so for two hours. The party reached the

Couvercle at 4.30 (not having halted since quitting the summit, but having lost much time in consequence of the snow having filled their steps), left it at 4.50 in heavy rain, arrived at the Montanvert at 6.30, and at Chamouni at 8.15 P.M. Total actual walking, 14 hrs.

On the 5th July the peak was again ascended by the late Rev. C. Hudson, Rev. G. Hodgkinson, and Mr. T. S. Kennedy, with Michel Croz, Michel Ambroise Ducroz, and Peter Perrin. They followed a different and apparently more difficult route than that taken by Mr. Whymper's party. Leaving the Couvercle at 2.50 A.M., they reached the summit at 12.50, halted till 2.0, and regained the Couvercle at 9.45 P.M.

COL DE TALÈFRE, *July 3.*—Mr. Whymper's party left the Montanvert at 4.0 A.M., mounted to the level part of the Glacier de Talèfre by the southern route, and made for a prominent couloir to the right of the Aiguille de Triolet, which leads to the crest of the ridge between that peak and the Aiguille de Talèfre. 'This couloir is easily identified, because it is bent—that is, it forms an angle, and is not in a straight line from top to bottom.' (E.W.) The summit was reached at 9.35. Height about 11,650'. They commenced the descent at 10.30, by steep but firm rocks, well broken up, crossed the schrund at their base at 11.10, thence bore down the Glacier de Triolet towards its left bank, and descended by snow between the glacier and the cliffs which border it. Crossing between the upper and lower icefalls to the right bank, they descended by snow and moraine, reached the Val Ferret, a short distance below Pré du Bar, at 1.30, and Courmayeur at 5.0 P.M. Total actual walking, less than 10 hrs.

MONT BLANC BY THE GLACIER DE BRENVA, *July 15.*—Messrs. G. S. Mathews, A. W. Moore, Frank and Horace Walker, with Melchior and Jakob Anderegg, left their bivouac on the left bank of the Glacier de Brenva, 5 hrs. from Courmayeur, at 2.45 A.M., and crossing the upper icefall of the glacier, reached the base of a buttress which comes down at right-angles to the main mass of Mont Blanc at 5.30. Climbing the side of this buttress, they got, in 2 hrs., on to the very sharp ice arête forming its crest, and followed it for 1½ hrs., until it merged in steep slopes of broken névé, which they ascended for 3 hrs. more. Then, bearing to the right, they reached the Corridor at 1.20, the top of Mont Blanc at 3.10, and Chamouni, by the usual route, at 10.30 P.M. Total actual walking, 17½ hrs. It is proposed to call the pass thus made Col de Brenva.

AIGUILLE DE BIONNASSAY, *July 28.*—Messrs. E. N. Buxton, Grove, and Macdonald, with Jean Pierre Cachat and Michel Payot, left the Pavillon Bellevue at 1.20 A.M., and followed the usual route to the Aiguille de Gouté as far as the foot of the Tête Rouge. They then crossed the Glacier de Bionnassay, and ascended an excessively steep glacier which falls from the arête connecting the Aiguille de Bionnassay with the Mont Tricot. The arête was attained at 1.0, and the summit at 3.15 P.M. It was not considered advisable to descend the same way. The arête was therefore quitted at a point rather higher than that at which it had been reached, and a descent effected on the SW. side over rocks to the head of the northern Glacier de Miage, which

was reached at nightfall. Total actual walking  $17\frac{1}{2}$  hrs. The night was spent on some rocks above the level of the Col de Miage, and the party reached St. Gervais at noon the following day.

*August 7.*—The same party, with Jakob Anderegg, J. P. Cachat, and Peter Taugwald, jun., left Chamouni at 12.5 A.M., and reached at 1.0 P.M. the point at which the arête leading to the Aiguille de Bionnassay joins the Dome du Gouté. Instead of following the route to the Col de Miage, they turned at once to the left, and descended the Glacier du Dome, which flows directly to the southern Glacier de Miage. Descending by the glacier, or the rocks on its left bank, they reached the Miage Glacier at midnight, and Courmayeur at 5.30 A.M. on the 8th. Total actual walking, 25 hrs.

#### *Monte Rosa District.*

*GRAND CORNIER, June 16.*—Mr. Whymper, with Michel Croz, Christian Almer, and Franz Biener, left Zinal at 2.5 A.M., and followed the route of the Col du Grand Cornier as far as the plateau below the col. Leaving this at 8.50, they ascended the intervening névé and snow-slopes to the eastern arête, and followed it to the summit, which was reached at 12.20. Height, 13,022'. The last 300 feet proved extremely difficult. They descended to the plateau in 2 hrs., reached the col at 4.5, and Abricolla at 6.0 P.M. Total actual walking,  $11\frac{1}{2}$  hrs.

*PIC DE RUINETTE, ETC., July 6.*—The same party, without Croz, left some chalets below Chermontagne at 3.50 A.M., crossed the Glacier de Breney from the south, and ascended the cliffs above the route of the Col du Mont Rouge from the side of the glacier. On arriving at a point immediately above the col, they turned to the right and followed the arête to the summit, which was reached at 9.15. Height, 12,727'. Descending at 10.40, they struck the Glacier de Breney much higher up, ascended the icefall of the eastern branch by its right bank, and then crossed to a col overlooking the Glacier d'Otemma, at 1.50. They left it at 3.5, and crossed the Glacier d'Otemma and Col de la Reuse d'Arolla to Prerayen, where they arrived at 7.15 P.M. Total actual walking, 12 hrs.

*GABELHORN, July 6.*—Messrs. A. W. Moore and Horace Walker, with Jakob Anderegg, left Zermatt at 12.20 A.M., and ascending the southern arm of the Trift Glacier, reached the foot of the wall of rocks at its head at 7.40. Climbing the rocks, they got on to the north-eastern arête of the Gabelhorn at 9.25, and followed it to the summit, which was reached at 10.45. Height, 13,364'. The descent to the glacier occupied 3 hrs., and the party arrived at Zermatt at 7.15 P.M. Total actual walking,  $16\frac{1}{2}$  hours. On the following day the late Lord F. Douglas ascended the peak from Zinal, and descended to Zermatt.

*COL DE BERTOL, July 8.*—The same party left Zermatt at 1.20 A.M., and reached the Col d'Erin at 9.10. They then, in 2 hrs., traversed the vast fields of névé at the head of the Ferpècle and Mont Miné Glaciers, to a well-marked depression in the ridge of the Dents de Bertol, just south of the point marked on the Federal map 3,507 mètres. Estimated height, 11,200'. They descended by the Glacier de Bertol, and the left side of a steep ravine below it, in  $1\frac{3}{4}$  hrs., to the

level of the Arolla Glacier, 45 min. above its termination, and reached the Arolla Châlets at 3.30 P.M. Total actual (but *very* slow) walking, 12 hrs.

COL DE BRENEY AND PIGNO D'AROLLA, *July 9.*—The same party left Arolla at 3.0 A.M., got on to the Cijorénové Glacier at 4.35, crossed it in 45 min. to the foot of the rocks on the left bank of the great ice-fall, and climbing them to the snow-fields above, reached a col above the Glacier de Cheillon at 8.30. Estimated height, 11,900'. They thence ascended the Pigno d'Arolla, 12,473', in 1 hr., returned to the col in 30 min., and descended the western arm of the Glacier de Breney, between the Ruinette and La Serpentine, for 2½ hrs., when they quitted the ice on its left bank, and reached Chanrion at 1.45 P.M. Total actual walking, 9¾ hrs.

In addition to the above entirely new expeditions, the Dent Blanche has been ascended, for the third time, by Mr. Whympfer, the second ascent having been made last year by Mr. Finlaison. On both occasions a different route was taken from that followed by Messrs. Kennedy and Wigram in 1862, the arête not being struck until very near the top of the mountain. Messrs. Moore and Walker, with Jakob Anderegg, effected the second passage of the Sesiajoch (which was first crossed by Messrs. George and Moore in 1862) in 15 hrs.' walking from the highest chalets in the Val Sesia to Zermatt; and the Moming Pass, from Zinal to Zermatt, first traversed last year by Messrs. Moore and Whympfer, has been again crossed by Mr. and Miss Walker.

#### *Tödi District.*

TÖDI AND GLIEMS PASS, *June 21.*—Messrs. Moore and Walker, with Jakob Anderegg, left their bivouac on the Biferten Grat at 4.10 A.M. and reached the summit of the Tödi (Piz Russein) at 1.20 P.M., having lost nearly 4 hrs. from ignorance of the way, which is very difficult to find. Height, 11,887'. Descending to the head of the Biferten Firn, they reached, in 1 hr., a depression between the Piz Urlaun and Stockgron (Piz Russein of Federal map). Estimated height, 10,500'. An easy couloir led down to the upper névé of the Gliems Glacier, which the party crossed, and in 25 min. from the col passed through an opening in the rocks on the right bank, whence they descended in 1½ hrs. to the Russein Alp, and reached Disentis in 3½ hrs. more. Total actual walking, 14¾ hrs.

PIZ URLAUN, *July 11.*—Messrs. H. E. Buxton, D. W. Freshfield, J. H. Blackhouse, and Tuckett, with F. Devouassoud and Peter Michel, ascended the Ferrera Thal from Trons to the foot of the Puntaiglas Glacier (2¾ hrs.), and proceeding straight up the centre of the latter to the foot of the Piz Urlaun (1½ hrs.), took to the rocks of its south arête, climbed by their east face to the summit of the ridge (¾ hr.), and following it gained the final peak in 20 min. Height, 11,063',—3372 mètres. This is believed to be the only ascent which has been made since the first, by Placidus à Spescha, in 1793. The party descended in a SW. direction to the head of the eastern arm of the Gliems Glacier (1½ hrs.), traversed it and its western neighbour to the right lateral

and thence reached the lower Russein moraine of the latter (40 min.), Alp in  $1\frac{1}{2}$  hrs. Total actual walking,  $9\frac{1}{4}$  hrs.

*Lepontine Alps.*

CAMADRA PASS, *June 23.*—Messrs. Moore and Walker, with Jakob Anderegg, left some châteaux in the Medelser Thal,  $2\frac{3}{4}$  hrs. from Disentis, at 3.40 A.M., and ascending to the head of the valley, got on to the Medel Glacier from its right bank at 5.35, and keeping straight up its eastern arm, reached a col to the east of the point marked on the map 3,203 mètres, at 8.5. Estimated height, 10,000'. They descended in 35 min. to the head of Val Blegno, by the eastern arm of the Camadra Glacier, in an almost uninterrupted glissade of at least 3,000 feet, and reached Olivone in  $3\frac{1}{2}$  hrs. more. Total actual walking, 8 hrs.

RHEINWALDHORN FROM OLIVONE AND VOGELJOCH, *June 24.*—The same party left the Bolla Alp in Val Carassina, 2 hrs. from Olivone, at 4.10 A.M., and after passing the Bresciana Alp, turned up the grass slopes on the east side of the valley, until 7.5, when they got on to the southern arm of the Bresciana Glacier, and ascended it for  $2\frac{1}{4}$  hrs. to the ridge above the Lenta Glacier. They followed this ridge till it merged in the glacier, then crossed to the ridge above the Rheinwald Glacier, which led them to the summit of the Rheinwaldhorn, at 10.30. Height, 11,149'. They went straight down the rocks forming the east face of the peak to the Rheinwald Glacier, and in  $1\frac{1}{2}$  hrs. reached a col, west of the Vogelberg, at the point marked on the map 2,938 mètres, or 9,640'. A very rough and toilsome descent led down to the Bolla Alp, in Val Malvaglia, in  $2\frac{1}{2}$  hours. Total actual walking,  $9\frac{1}{2}$  hrs. The party descended Val Malvaglia for a short distance, and then turning up a lateral glen to the north-east, reached the Pèna Alp in  $1\frac{1}{2}$  hrs. from Bolla.

ZAPPORT PASS, *June 25.*—The same party left the Pèna Alp at 3.55 A.M., and followed a very steep but good track along the right side of the valley for 1 hr., to a point opposite the Giumento Alp. Steep slopes of grass and shale succeeded for  $1\frac{1}{2}$  hrs. and led to a small glacier, over which a col, west of the Vogelberg, was reached in 50 min. Estimated height, 9,600'. The descent of the Zapport Glacier by its left side occupied only 45 min., but for want of local knowledge the party lost some time in getting off the ice, and did not reach Hinterrhein till 1.25 P.M. Total actual walking,  $7\frac{3}{4}$  hrs. This pass is strongly recommended as a glacier route between Hinterrhein and the Lago Maggiore, but future travellers will probably save time by keeping to the right side of the main branch of the Zapport Glacier.

*Bernina District.*

PIZ ROSEGG, *June 28.*—Messrs. Moore and Walker, with Jakob Anderegg, left the Misana Alp, in the Rosegg Thal,  $1\frac{3}{4}$  hrs. from Pontresina, at 3.10, and ascending the Rosegg Glacier, reached the base of the Piz Rosegg, near the Sella Pass, in  $3\frac{3}{4}$  hrs. They then, in  $3\frac{3}{4}$  hrs., climbed the rocks forming the western face of the mountain, to the crest of the ridge between the Rosegg and Tschierwa Glaciers, over which the northern or lower peak (which was ascended by Mr. Bircham

in 1863, and Herr Weilenmann in 1864) was reached in 35 min. more, at 12.0. Height, 12,884'. From this peak an exceedingly sharp arête of ice and rock, the passage of which occupied  $1\frac{1}{4}$  hrs., led to the highest point. Height, 12,937'. In descending the party followed the ridge to the head of a small hanging glacier, down which they reached the Rosegg Glacier, without any difficulty, at 3.30, in 2 hrs. from the summit of the mountain, and arrived at the Misuna Alp at 6.0, and Pontresina at 7.25 P.M. Total actual walking,  $14\frac{3}{4}$  hrs.

Pizzo di VERONA, July 6.—Messrs. F. F. Tuckett, D. W. Freshfield, and H. E. Buxton, accompanied by F. Devouassoud, P. Michel, Walther of Pontresina, and a porter, started on the 5th from Pontresina up the Bernina Pass, and, taking the Cavaglia footpath along the shores of the Lago Bianco, proceeded as far as the Alp Grumm, situated on the ridge which forms the W. boundary of the Val di Pila, and nearly opposite the Palù Glacier, but several hundred feet above and to the E. of the Palù Châlets. Here they found unusually good sleeping-quarters. The next morning, skirting round by the slopes of rock and turf to the N. of the Palù Alp nearly on a level with their starting-point, they reached in  $1\frac{3}{4}$  hr. the left or N. moraine of the Palù Glacier, just above the final and most dislocated portion of the icefall, and in another  $\frac{1}{2}$  hour, after traversing a comparatively level stretch of the glacier, stood at the foot of the upper icefall. They might easily have gone straight up this to the lowest point of the ridge above, where the snow slopes away to the upper and eastern névé of the Fellaria Glacier; but their object being to ascend the Pizzo di Verona—which Colani and everyone else at Pontresina assured them had never been climbed—they kept more to the left, and struck the western arête of the peak, after an ascent (taken *very* gently) which presented no serious difficulty. Turning to the left along the ridge, the summit was gained at 8 A.M., in 2 hrs. from the foot of the upper icefall, or  $4\frac{1}{4}$  hrs. from the châlets. Height, 11,358'—3,462 mètres. Here they found a cairn, but as no record could be discovered, and they could not learn that any traveller had anticipated them, it is possible that it may have been erected by some Jäger. Be this as it may, it is probable that the course at least taken by them was a new one, and they feel some scepticism as to the correctness of the Austrian map of Lombardy (Blatt, c. 2), which indicates a route from the Fellaria Châlets, right up the most dislocated portion of the Fellaria Glacier, to the watershed between the latter and the Palù Glacier, and then, suddenly discontinuing the dotted line, dubs the depression the "Passo di Gambre." They erected a second cairn to the W. of the other, and then, after  $2\frac{1}{4}$  hrs.' halt, descending the rocks in a SSW. direction, traversed the névé of what may perhaps be christened the Verona Glacier, gained the Verona Pass (crossed by Messrs. E. N. Buxton and Tuckett in 1864) in  $\frac{3}{4}$  hr., and dropping down slightly to the W. of the actual Rovano Pass, reached the Gambre Alp in  $1\frac{1}{4}$  hrs., and the Gere Châlets in  $\frac{1}{4}$  an hr. more. Pursuing their course down the Val Campo Moro, as far as Foppa, they then struck off to the right, into the Val Lanterna, across the SW. spur of the Sasso Moro. After ascending the valley for a short distance they crossed to the right bank

of the torrent ( $1\frac{1}{2}$  hr. from the Gere Châlets), and pushed up the mountain-side for a depression in front, just above the Campo Lungo Châlets;  $1\frac{1}{2}$  hr. was occupied in the ascent to the col, which, though low and grassy, commands a superb view of the Disgrazia, the head of the Val Malenco, and the lovely Lago di Palù. Making straight for the latter, they reached in  $\frac{3}{4}$  hr. the level of the valley, up which they proceeded to Chiareggio in 1 hr. more. Time to summit of Pizzo di Verona,  $4\frac{1}{4}$  hrs.; thence to Chiareggio,  $7\frac{1}{4}$  hrs.' easy walking.

DISGRAZIA JOCH, *July 7*.—The same party, without the porter, ascended the Disgrazia Glacier, the upper portion of which is considerably crevassed; and climbing the ridge of rocks at its head, at the point where they are lowest, just at one of the deepest depressions of the line of cliff connecting the Disgrazia and Monte Pioda with the Monte Sissone, effected a very fine new pass, which they propose to call the Disgrazia Joch. Its height can scarcely exceed 9,500 feet—2895.5 mètres, and it constitutes a useful link between the Vals Malenco and di Mello. Chiareggio to foot of glacier, 1 hr.; thence to foot of final rocks, 3 hrs.; and up the latter to the col,  $\frac{1}{2}$  an hr.; col to foot of glacier on W. side (which presents no difficulty, and should be descended by its right bank), 40 minutes; thence to highest malga,  $\frac{3}{4}$  of an hr., La Rasica, 1 hr., S. Martino, 1 hr.; and the Bagni di Masino,  $\frac{3}{4}$  of an hr.,—or  $4\frac{1}{2}$  hrs. up and  $4\frac{1}{4}$  hrs. down.

FORCELLA DI BONDO, *July 8*.—The same party proceeded up the Val Porcellizza, with the intention of crossing the so-called Passo di Bondo, but the maps being inaccurate, they contrived to strike the ridge too far to the W. (too near in fact to the Pta.-Trubinescar of the Federal map—the Piz Badile of Lechner), and so had to cross over a lateral spur to the next depression on the right, only to find that if a pass in the usual sense of the word existed at all, it must lie still farther in the same direction. On gaining, however, the crest of the next spur to the E. (P. Cengal of Lechner?) beyond which the true col was supposed to lie, they struck up the rocks to the left; and finding a gap at their summit through which they could pass, and then get down the precipice on the N. side to the névé of the Bondasca glacier, they determined to effect a new version of the Passo di Bondo at this point. Estimated height, 10,150'—3093.5 mètres. The rocks required care, and the couloirs between them a good deal of step-cutting, but in 2 hrs. the glacier was reached; and keeping down it, first to the right and then to the left, and finally to the right again, they traversed without difficulty or halt its very formidable-looking and complex system of crevasses, and quitted it for the right lateral moraine, just beneath the Pizzo di Cacciabella, and descended rapidly through scenery of the highest order to Promontogno and Castasegna, in the Val Bregaglia. Total actual walking—up,  $5\frac{1}{2}$  hrs.; down,  $5\frac{3}{4}$ .—N.B. The snowy sattel at the extreme head of the Bondasca glacier leads over into Val Masino, by the Val di Ferro, and is entirely cut off from the Val Porcellizza.

*Alps of Venetia, Tyrol, and Lombardy.*

PASSO DI CANALI (9,500 English feet—2895.5 mètres?)—AGORDO TO PRIMIERO. *May 30*.—Messrs. D. W. Freshfield, J. H. Backhouse, G. H.

Fox, and F. F. Tuckett, accompanied by François Devouassoud of Chamouni and Peter Michel of Grindelwald, proceeded from Agordo up the Val di S. Lucano, as far as col, and then turning off to the S. and ascending the W. slopes of the Val d'Angoraz, reached a great plateau of névé and glacier stretching southwards from the Coston di Miel to a nameless summit N. of the Cima di Canali. Traversing the snow-fields which extend to the W. of this nameless summit, and crossing one of its shoulders at a height of nearly 10,000 feet, they then descended into an elevated basin between it and the Cima di Canali, and, re-ascending slightly, gained a depression in the ridge between the last-named peak and the Croda Grande (Sasso di Campo), just at the respective heads of the Vals d'Angoraz and di Canali. The descent into the latter was effected without difficulty; but, owing to the lateness of the start from Agordo and the great detour to the W., they were benighted in the pine-woods, and had to camp out. This pass appears to be known to the natives on both sides, but they cannot learn that it has ever been crossed by travellers, to whom it may be highly recommended as traversing some of the grandest scenery in the Dolomites. Future comers are advised to endeavour to reach the col over the glacier at the head of the Val d'Angoraz, or, if that route should prove difficult, by the E. shoulder of the nameless summit already alluded to. Under ordinary circumstances the ascent from Agordo would probably occupy about 5 hrs., and the descent to Primiero 4 more.

PASSO DELLA ROSETTA (9,150 feet—2,789 mètres?)—S. MARTINO DI CASTROZZA TO GARES AND CENCENIGHE. *June 1.*—The same party starting from S. Martino gained the ridge which extends N. from the Palle di S. Martino, between the Cimon della Pala and the Cima della Rosetta (3 hrs.), and then, descending by a series of magnificent gorges and basins through most striking scenery into the Val delle Comelle, crossed to the right bank of the torrent (just before it descends the cliffs below in a fine cascade) by means of a pine trunk, and in 3 hrs. from the col reached the charmingly situated village of Gares. Here they were told that the pass was occasionally traversed by shepherds, but no one at S. Martino seemed to be aware of its existence, and it does not appear to be known to travellers, or to be *named* on any map, though portions of the route are indicated on the military survey of Venetia. Gares to Forno di Canale 1 hr.; Cencenighe  $\frac{3}{4}$  hr.; S. end of Lago d'Allegghi  $1\frac{3}{4}$  hr.; head of do. (in boat)  $\frac{1}{2}$  hr.; and Caprile  $\frac{3}{4}$  hr. Total from S. Martino  $10\frac{3}{4}$  hrs., not including halts.

MARMOLATA (11,466 feet—3495 mètres; Kataster, 11,045 feet—3366.5 mètres) Grohmann (the latter is probably the most correct). *June 2.*—The same party, with the exception of Mr. J. H. Backhouse and the addition of Pellegrini (a chasseur of Rocca), left Caprile at 2.30 A.M., and reached the Fedaja pass via the Gorge of Sottoguda in 3 hrs. Here Pellegrini was left behind, and, descending a short distance on the W. side of the col, they struck up the S. slopes of the valley, and in  $\frac{3}{4}$  hr. reached the foot of the second (counting from the W.) of several glacier tongues which descend from the great névé, covering the N. flank of the Marmolata di Rocca, and the NE. slopes of the highest summit

or Marmolata di Penia. Ascending the ice in a SW. direction, and keeping away more to the right above, where the upper portion of the rocky ridge on the W. merged in the snow-fields, they next descended slightly, and gained the snowy hollow or valley in which lies the névé of the most westerly ice-tongue, and which runs up to the ridge between the Marmolata di Rocca and the Marmolata Proper. This corridor was followed to the eastern foot of the final rocks, and, partly by these and partly by the couloirs which seamed them, the highest summit was gained without difficulty. The sun being intensely hot, and the snow in consequence soft, the pace was slow, and  $3\frac{1}{2}$  hrs. were spent between the foot of the glacier and the summit, so that the ascent occupied altogether a little over 7 hrs. In descending the same route was followed. Time, summit to foot of Glacier,  $1\frac{3}{4}$  hrs.; Fedaja pass,  $\frac{1}{2}$  hr.; and Caprile  $2\frac{1}{4}$  hrs., or  $4\frac{1}{4}$  in all. The cairn erected by Herr Grohmann on the occasion of his (the first) ascent last year was found in good order on a ledge of rock about 30 feet below and 100 feet to the W. of the actual summit, but no record was discovered in it. The details of the expedition since published in the *Jahrbuch* of the Austrian Alpen-Verein, render it probable that the course pursued by him and his successors was nearly identical.

PASSO DI CENGIA OR OBER-BACHER JOCH (9,000 feet—2743 mètres?)—AURONZO TO SEXTEN AND INNICHEN (PUSTER THAL), *June 6.*—This very beautiful pass, though indicated on the Austrian map, appears to possess no special name, and to be almost, if not quite, unknown to travellers. The same party, including Mr. Backhouse, started from Auronzo, and ascending the valley as far as the entrance of the Val Marson ( $1\frac{1}{4}$  hrs.), turned up the latter, and followed its left side till they reached the foot of the Val Cengia (1 hr). A very imperfectly marked track led up this to the ridge ( $2\frac{1}{2}$  hrs.), between the summits named on the Austrian map Coll'Agnello and Patern Kg. (Kogel). Descending through rock-scenery of the most stupendous character into the Ober-Bacher Thal, Sexten was reached in  $2\frac{1}{2}$  hrs., and Innichen in  $1\frac{1}{4}$  more, or  $8\frac{1}{2}$  hrs.' walking from Auronzo. The tremendous crags and fantastic aiguilles characteristic of the Dolomites are here seen in the highest perfection.

JOHANNSBERG JOCH (11,000 feet—3352.5 metres?)—STUBACH THAL TO HEILIGENBLUT BY THE OEDENWINKL AND PASTERZE GLACIERS, *June 9.*—The same party (with the exception of Mr. Backhouse and the addition of Johann Gräßler of Kals as porter), starting from the highest (Blau See) châteaux in the W. arm of the Stubach Thal, crossed the depression in the ridge to the S. of the Schafbühel ( $1\frac{1}{2}$  hours), and reached the left bank of the Oedenwinkl Kees, over slopes of rock, turf, and débris ( $\frac{1}{4}$  hour). Proceeding along the E. side of the 'Kees' or glacier, they mounted by some rocks on the right of the icefall to its upper plateau, beneath the cliffs of the Johannisberg, and then, bearing rather to the left, climbed the E. ridge of that mountain by a rocky gully ( $3\frac{1}{2}$  hours). Thickly falling snow and a violent wind rendered it very difficult to determine the exact position of the pass, but during occasional lifts the summit of the Johannisberg appeared to be at a very short distance to the W., and not more than 200 or 300 feet above them, and they believed themselves to have gained a point intermediate between it and the Todtenlocher.

The height, therefore, is *probably* not less than 11,000 feet, and *may* be as much as 11,400—3474.5 mètres. Proceeding down the névé of the Pasterze, they struck the head of the great icfall between the Gross and Klein Burgstall, cut their way right down it, and, quitting the ice at a point a little above the Hohen Sattel ( $3\frac{1}{2}$  hours), reached Heiligenblut (2 hours) at 2.45 P.M. Ascent  $5\frac{1}{4}$ , descent  $5\frac{1}{4}$  hours' walking.

OBER-SULZBACH, OR DORFER-SULZBACH THÖRL (9,578 feet—2919.5 mètres?—Simony)—PREGRATTEN IN THE VIRGEN THAL TO THE OBER-SULZBACH THAL AND PINZGAU, June 13.—The same party (with the omission of Gräßler) left the Johannshütte, at the foot of the Dorfer Kees, in a driving snow-storm, and proceeding up the glacier reached the ridge at its head, between the Gross Venediger and Heiligen Geist Kees Kogel or Hohe Geiger Spitz, in  $3\frac{3}{4}$  hours. Thence they descended upon the Ober-Sulzbach Glacier, gained the rocks on its right bank just above the icfall ( $1\frac{1}{2}$  hour), and, keeping along them for some distance, returned to the ice farther down, and in 2 hours reached the terminal moraine. The rocks were exceedingly broken and much time would probably have been saved if they had descended upon the lower portion of the glacier by its left or W. bank, where the séracs are less formidable, and snow-slopes appeared to render the passage easy. The first almhütte, or châteaux, were reached in  $\frac{1}{2}$  hour, Rosenthal, in the Pinzgau, in  $2\frac{3}{4}$  hours, and Kriml in  $1\frac{1}{4}$  more. No account of the passage of this col is known to them, and the only allusions to it with which they are acquainted occurs in the new edition of the 3rd volume of Schaubach's 'Deutsche Alpen' and the 'Jahrbuch,' of the Austrian 'Alpen-Verein,' just published. At any rate, it certainly deserves to be better known, as the scenery is of a very high order.

HOCH MÖSEL FERNER SPITZ, OR MÖSELENOCK (11,424 feet—3482 mètres?)—LAPPACH, IN THE MÜHLWALDER THAL, TO GINZLING, IN THE ZEMM THAL—June 16.—The same party, starting from Lappach, in the Mühlwalder Thal (which joins the Ahren Thal at Mühlen, a little below Taufers), proceeded up the valley to the foot of the Mösele Ferner, at a point to the W. of and somewhat above its most easterly ice-tongue (3 hours). Ascending in a N. direction, and skirting the E. slopes of a spur which descends nearly due S. from the summit, they finally struck up to the left, gained the crest of the arête referred to, and proceeded upwards along it as far as the SE. peak (which may be 150 feet lower than the highest), when farther progress was rendered difficult by the state of the snow, which masked the rocks and gave no foothold. They then descended diagonally to the right by the slopes, which led to the Glacier, reached the watershed between the Thurner Kamp and the Mösel Spitz, at a point close to the E. foot of the latter, and climbed the comparatively easy rocks which led thence to the summit ( $4\frac{1}{2}$  hours). The view was very fine, though often obscured by great masses of cloud which came sweeping up on all sides. From an observation with the level it would appear that the Hoch Mösel Spitz, which has generally been supposed to be the loftiest of the Ziller Thal group, is *slightly* lower than the Hoch Feil Spitz (or a peak corresponding with the latter in position, as given on the Government map of Tyrol), which lies about three miles to the WSW. The descent proved laborious and somewhat difficult. A sort

of shoulder projects in a NW. direction from a little below the summit, and keeping to the right of this they cut down steep snowslopes whilst working diagonally across them towards the N. ridge of the mountain which connects it with the Furtschlügel Spitz. In this way the névé of the E. division of the Furtschlügel Glacier was reached (2 hours), and the ice finally quitted on the right bank ( $1\frac{1}{2}$  hour), beneath the slopes of the Talgen Kogel. Thence the route lay down the Hörpinger Thal, past the châteaux at its junction with the Zamser Thal ( $1\frac{1}{2}$  hour), and so by the latter to Breitlechner ( $1\frac{1}{2}$  hour), and Ginzling, in the Zemmer Thal (2 hours). Time, ascent  $7\frac{1}{2}$  hours; descent,  $8\frac{1}{2}$  hours.

THE VORDER SCHAUFEL SPITZ OR WILDE PFAFFEN (11,512 feet—3509 mètres?). — THE SULZER OR PFAFFEN JOCH (10,500—10,800 feet—3200.5 to 3292 mètres?). — FROM THE HEAD OF THE S. ARM OF THE STUBAY THAL TO THE HEAD OF THE WINACHER THAL — *June 20.* — This peak was ascended for the first time last year by Drs. Pfandler and Von Barth, and the chasseur Urbas Loial, of Neustift. This party, starting from the Mutterberger châteaux, reached the summit from the NW. in  $7\frac{1}{2}$  hrs., and appear to have returned the same way. Mr. Tuckett and his companions (including Mr. Backhouse) slept at the Graben (or In's Graben) almhütte, a little beyond Schöngelair, and, striking up the slopes on the right bank of the valley, close to a fine waterfall, reached ( $\frac{3}{4}$  hr.) a level expanse of upland pasture, resembling an ancient lake bed and surrounded by fine rocks. A faintly marked track led up hence to the foot of the Sulz Ferner (1 hr.) — not to be confounded with the glacier of the same name at the head of the Sulzer Thal, a branch of the Oetz Thal. Proceeding in a SW. direction over the nearly level surface to the foot of the first icefall ( $\frac{1}{2}$  hr.), and gaining the plateau above by the slopes on the left ( $\frac{1}{4}$  hr.), the second or upper icefall was next turned in a similar manner ( $1\frac{1}{4}$  hrs.), and a lofty sattel or col reached, which appears to have been also attained, though from a different direction, by the previous expedition. From this point much step-cutting became necessary, and nearly  $2\frac{1}{2}$  hrs. were thus consumed before the summit was gained. There is no question that Drs. Pfandler and Von Barth were correct in supposing the E. peak or Zuckerhütl to be slightly loftier; but as the view from it would be almost precisely the same, and time was an object, it did not seem worth while to attempt its ascent. Returning to the sattel, the height of which must be from 10,500 to 10,800 feet, they descended the snow-slopes on the SW., and, bearing away to the left, reached a glacier basin, whose surface was at first but slightly inclined. The inclination, however, gradually increased till farther progress on the left became almost impossible. Traversing to the right, therefore, along the brow of the icefall, they cut their way down its centre, and landed (2 hrs.) on some rocks, which descended almost precipitously to the head of a lateral valley of the Winacher Thal. These proved troublesome, but a passage was at length found on the right and the valley gained (1 hr.), and Sölden in the Oetz Thal finally reached via the Winacher Thal (2 hrs.). Ascent  $6\frac{1}{4}$  hrs., descent 5 hrs.

WILDSPITZ. (12,390 ft.—3776.5 mètres?). MITTELBERGER JOCH. (11,000 ft.—3352.5 mètres?). FROM FEND AND ROFEN, IN THE

OETZ THAL, TO MITTELBERG, IN THE PITZ THAL, *June 22.*—The same party, with the addition of Benedict Klotz of Fend as porter, started from that place at 1.45 A.M., and passing beneath the foot of the Rofenkar Kees, gained the summit of the Wildspitz in  $7\frac{1}{2}$  hrs., viâ the Urkund, a southerly offshoot of the mountain. This was the route followed in the first ascent by Herr Specht, and it certainly presents no serious difficulty whatever, if care is taken to keep some distance below the summit of the Urkund. From ignorance of this, Mr. Tuckett and his companions were occupied nearly 4 hrs. in turning the rocks and couloirs above the Rofenkar Kees before they could effect a transit from the depression S. of the Urkund to the saddle N. of it, and at the foot of the final slopes of the Wildspitz. Future comers are strongly recommended to go right up the Rofenkar Kees, and strike the saddle just alluded to from its head; by which means the ascent might probably be effected in little more than 5 hrs. from Fend, since the time occupied from that place to the foot of the glacier was only  $1\frac{3}{4}$  hrs., and from the saddle to the peak, 1 hr., leaving  $2\frac{1}{4}$  hrs. for the glacier. After spending  $1\frac{1}{4}$  hrs. on the summit, they retraced their steps to the saddle, and thence, descending eastwards towards the head of the Rofenkar Kees, and keeping round well to the left, dropped down upon the lowest point ( $1\frac{1}{2}$  hrs.) of the ridge connecting the Wildspitz with the (Fender) Weiss Kugel, and separating the névés of the Rofenkar and Mittelberg Glaciers. The height is but little inferior to that of the Weiss Kugel (11,209 ft.—3416.5 mètres), and may therefore be put at about 11,000 ft.—(3352.5 mètres). On quitting the summit of the pass, their course lay down the eastern of the two great bays into which the névé of the Mittelberger Glacier is divided by the Hochwand, and no difficulties were encountered till the brow of the upper icefall was reached at the point where the highly crevassed Hangende Ferner comes down from the E. at right angles to the main ice-stream. A passage was, however, soon effected through the séracs to the no small astonishment of Klotz, and in spite of his protestations of danger, suggested by his imperfect knowledge of ice-craft. The right lateral moraine was reached in 2 hrs. from the pass a descent effected (1 hr.) over rocks and turf, and down couloirs and slopes of debris, to the lower portion of the glacier beneath the second icefall (which is of the grandest character), the ice finally quitted for the terminal moraine (1 hr.), and the Mittelberg Châlets attained in another  $\frac{1}{4}$  hr. Time, Fend to summit of Wildspitz  $7\frac{1}{2}$  hrs.; thence to Mittelberg Joch,  $1\frac{1}{2}$  hr.; and on to Mittelberg,  $4\frac{1}{4}$  hrs. more. It is reported that some peasants once tried to effect this pass from Fend, but either never succeeded in overcoming the difficulties of the two icefalls, or only forced a passage at the greatest risk. Be this as it may, it is believed that no travellers had crossed it previously, though Mittelberg had been reached direct from Heiligen Geist in the Oetz Thal, viâ the Schwarze Schneide, the Hangende Ferner, and the right bank of the lower part of the Mittelberg Glacier, as well as by the Pitz Thaler Jöchl from Sölden.

LANGTAUFERER SPITZ (11,626 ft.—3543.5 mètres?) FROM FEND, VIA THE HINTEREIS GLACIER AND LANGTAUFERER JOCH (10,335 ft.—3150 mètres?). THE WEISS KUGEL (12,280 ft.—3743 mètres?), VIA THE HEAD

OF THE HINTEREIS GLACIER AND THE MATSCHER JOCH (11,400 ft.—3474.5 mètres?) AND OVER THIS LAST TO THE MATSCHER THAL AND SCHLUDERNS, *June 24.*—On the 23rd the same party (minus Mr. Backhouse and Klotz) returned to Fend, via the Oelgruben Joch (9,852 ft.—3003 mètres?), and the Gepaatscher Joch (10,500 ft.—3200.5 mètres?), in 12½ hrs.' walking; and on the following morning ascended the Rofen Thal to the Hintereis Glacier, the foot of which was reached in 2¼ hrs. Proceeding up its S. arm, and turning off to the W. beneath the cliffs of the Hochvernagt Wand, they gained the Langtauferer Joch (10,335 ft.) in 3½ hrs.; and then, bearing sharp to the left, up the N. arête of the Langtauferer Spitz, climbed to the summit of the latter in 1 hr. more. So far as they are aware, this mountain had never been ascended before. Descending on the opposite side, in a southerly direction, upon the head of the Hintereis Glacier, they mounted from thence (2¼ hrs.) to a snowy saddle between the Inn Quell Spitz and the Weiss Kugel, and situated immediately at the SE. foot of the latter. The level showed this point to be about 200 ft. lower than the Langtauferer Spitz, or about 11,400 ft. From hence they ascended (1 hr.) the Weiss Kugel (12,280 ft.), the second highest summit of the Oetz Thal group, and commanding about the finest and most beautiful view in Tyrol. The eye plunges downwards to the bottom of the valleys of Langtaufers, Matsch, Schnals (from which Herr Specht's previous ascent was effected), and a strip of the Vintschgau, besides commanding portions of the Oetz and Pitz Thäler. A few steps had to be cut along the final ridge, but otherwise there is no difficulty. The saddle, which it is proposed to call the Matscher Joch, was soon regained (25 min.), and the descent on the SW. side into the head of the Matscher Thal commenced. Keeping first to S., beneath the cliffs of the Inn Quell Spitz, and to the left of a rocky point protruding from and dividing the upper névé of the Matscher Glacier, they then bent round to the right, and having reached the brow of the lofty and magnificent icefall, cut their way diagonally across its upper and less dislocated portion to the right lateral moraine (1¼ hr.). Following this, or the slopes of rock and turf, the end of the glacier was passed in 20 min., the highest châteaux reached in ¾ hr., Matsch in 1¾ hrs., and Schluderns in 1 hr. more. Total, 15½ hrs.

THE ORTELER JOCH (11,000 ft.—3352.5 mètres?). TRAFOI TO THE VAL DI ZEBRU, BETWEEN THE ORTELER SPITZ AND AN OUTLIER OF THE THURWEISER SPITZ, *June 26.*—The same party, with the addition of Mr. Backhouse, proceeded from Trafoi past the Heiligen drei Brunnen to the foot of the ridge which divides the tongues of the Orteler and Trafoi Glaciers. (Dr. E. von Mojsisovics proposes to call them the Unter and Ober Trafoier Ferner.) The rocks proved more difficult than had been anticipated, and nearly 1 hr. was lost before a passage was discovered, and the left bank of the eastern ice-stream reached. The ice was here traversed (3½ hrs.), and the slopes of débris beneath the cliffs of the Orteler ascended for ½ an hr. parallel to the course of the glacier, till the rocks were found to abut upon it. Its inclination and dislocation here became considerable, but it was necessary to force a passage through the séracs, which are extremely

grand. After many detours this obstacle was at length overcome, and the upper and more level portion of the Unter Trafoier (or Orteler) Glacier attained ( $2\frac{1}{2}$  hours). One hour's gentle ascent over this, followed by a steep but short scramble up a snow-wall, led to the summit of the pass occupying a depression between the Orteler Spitz on the NE., and a snowy summit on the W., which appears to bear no distinctive name, and is merely an eastern offshoot from the loftier Thurwieser Spitz (Plate III. of the Kataster—11,962 feet—3646 mètres.) An observation of the Monte Confinale with the level gives a height of about 11,000 feet for the pass. The actual ridge was free from snow throughout its entire length and for a breadth of a few feet, and consisted of fine wind-blown fragments of stone, arranged as evenly as the pebbles on a beach. Just below, on the S. side, is a very curious natural stone-man. The ascent of the Zebru Spitz (or Kleiner Zebru, as it is likely in future to be called, in order to distinguish it unmistakably from the Königspitz, which is still often given in maps under the name of Zebru) had been contemplated when the party started, but clouds so constantly covered its summit, destroying all hope of a view, that though it would have been easily accomplished from the Orteler Joch, the attempt was abandoned. Before finally quitting the pass, however, they ascended (25 minutes) some moderately-inclined snow-slopes to the lowest point of the ridge connecting the Orteler Spitz with the Kleiner Zebru (12,348 feet—3763.5 mètres), the height of which must be nearly if not quite 11,500 feet (3505 mètres). It seemed to them certain that the summit of the Orteler, even if at all attainable by its S. arête, could only be gained in this direction with much greater difficulty and expenditure of time than by any of the four routes previously followed. On the other hand, though their position did not enable them to see the whole of the steep slopes which led down on the E. to the head of the Sulden Glacier, they have little doubt that a new pass of the grandest description will here reward the first future comer who seriously attempts it. As the perfect facility of the descent on the W. side has been demonstrated by their personal examination, they strongly advise that the Sulden Thal should be made the starting-point for this expedition. Returning to the Orteler Joch (15 min.) they proceeded down the W. branch of the Zebru Glacier, keeping away well to the right, or SW., beneath the cliffs of the Thurwieser Spitz, and quitting the ice for the right lateral moraine in  $1\frac{1}{4}$  hours. An easy descent over slopes of débris and turf led to the level of the Val di Zebru ( $\frac{3}{4}$  hour), and following the foot-path down the latter they reached S. Gottard (Val Furva) in  $1\frac{3}{4}$  hours, and Santa Catarina in  $1\frac{1}{2}$  more; Trafoi to summit of pass,  $7\frac{1}{2}$  hours; detour to ridge, 40 minutes; descent to Sta. Catarina,  $5\frac{1}{4}$  hours. It is probable that time would have been saved if the old route taken by Thurwieser in his ascent of the Orteler had been selected, instead of taking the glacier at its lower extremity. This leads up from the Heiligen Drei Brunnen in a SE. direction, and then, turning sharp to the right, passes along the brow of the cliffs above the wooded spur ('Bergl') which is visible from Trafoi, and finally joins the other on the slopes of débris beneath the precipices of the Orteler, just below where the principal séracs are met with in the glacier.

PIZZO DELLA MARE (11,920 feet—3,633 mètres?), MONTE TRESERO (W.

and highest summit, visible from Santa Catarina, 11,800 feet?—3,596.5 mètres), *June 28.*—The same party proceeded up the Gavia Thal from Santa Catarina, and quitting the path a little below the Ponte di Preda, struck up the slopes to the left and gained the right moraine of the Gavia Glacier in  $2\frac{3}{4}$  hrs. Following at first the centre of the ice-stream, and then keeping across to the right to avoid the most dislocated portion of the icefall, they traversed the séracs without difficulty, and attained the NE. corner of the gently-inclined upper plateau or névé. From hence it would have been perfectly easy to gain the summit of the Pizzo della Mare by the W. arête connecting it with the Tresero; but in order to avoid exposure to a furious NW. wind, they made for the ridge which runs in a SW. direction to the Corno dei Tre Signori, and forms the watershed between the Vals Gavia and Bormina, and then, turning to the left, climbed the peak by its S. arête (3 hrs.). After spending 3 hrs. on the summit, they retraced their steps to the head of the glacier, and striking across the névé in a WNW. direction, and traversing the snowy ridge descending from the SE. or lower peak of the Tresero, gained the higher or NW. peak (11,800 ft. ?), immediately above Santa Catarina, in  $1\frac{3}{4}$  hr. Here they remained another hour, and then descending by the SW. arête, upon a small glacier (whose terminal ice-cliffs are seen from Santa Catarina, at some distance to the W. of the summit), and scrambling down the rocks and couloirs close to its right bank, they easily reached the level of the Val Furva ( $2\frac{3}{4}$  hrs.) by a beautiful path traversing first some pastures and then a pine-wood. From this point to the Stabilimento delle Acque is a walk of  $\frac{1}{4}$  of an hr. To summit of Pizzo della Mare,  $5\frac{1}{4}$  hrs.; thence to summit of Tresero,  $1\frac{3}{4}$  hrs., and to Santa Catarina, 3 hrs. The views throughout the day were wonderfully fine, and, owing to the extreme purity of the atmosphere and the absence of cloud, the range of vision surpassed, it is believed, anything yet recorded in the Alps. From the Pizzo della Mare, for instance, not only was Monte Rosa as distinctly seen as from the Monte Monterone, but Mont Blanc (distant 185 miles) was also recognisable; and even Monte Viso, glittering in the bright morning sunshine, was most clearly identified, both with the naked eye and with a powerful telescope, though at the enormous distance of 210 miles. In addition to the foregoing, the view from the Pizzo comprised the Allalinhorn, Alphubel, Disgrazia, Monte Sissone, Roseg, Zupo, Palù, Piz Verona, Finsteraarhorn (?), Orteler group, Weiss Kugel, Wildspitz, and a whole sea of peaks of the Oetz, Stubay, Ziller, and Tauern groups as far as, if not beyond, the Gross Glockner, together with the Pelmo, Marmolata, Civita, Brenta Alta, Presanella, Adamello, &c. A few remarks on the topography and hypsometry of the peaks at the head of the Val Furva may here be appropriately added, as Mr. Tuckett has had this year an opportunity of extending and correcting his knowledge of the district. For this purpose it will be convenient to refer to Fig. 1, Plate I., which accompanies that gentleman's paper on the 'Topography of the Orteler Group,' in the December number (VIII.) of the 'Alpine Journal,' as well as to the reproduction of the former, with corrections, illustrating an article by Dr. E. Von Mojsisovics in the 'Jahrbuch' of the Austrian 'Alpen-Verein,' just published. For a full discussion of the amended identifications, the

latter work (p. 231) must be consulted. It will suffice here to say that after a careful examination of the original sections of the General-Stab and Kataster surveys, the following conclusions have been arrived at:—The Palle della Mare of Mr. Tuckett's outlines is the Pizzo della Mare of the maps of Lombardy and Tyrol; whilst Peaks N and M, the Viozzi Spitz, and Rocca Marcia, of the former, represent respectively the Giumella (11,842'—3,609·5 mètres), Palle della Mare (11,855'—3,613·5 mètres), Saline (11,883'—3,622 mètres), and Viozzi Spitz (11,920'—3,633 mètres) of the Kataster. Mr. Tuckett's ascent of the Pizzo della Mare enables him to state positively that it is situated on the watershed (which was previously a matter of doubt), whilst his observations with a level show that its height differs very little, if at all, from that of the Viozzi Spitz of the Kataster (or Rocca Marcia of the maps), and is but slightly superior (from 50 to 100 feet) to that of the Saline, Palle della Mare, and Giumella of the same authority. Between the Viozzi Spitz and the Monte Cevedale or Ceval Spitz (the old orthography—Zufall Spitz—is incorrect) comes a broad round-shouldered summit, to which no name is assigned on the maps, nor any height by the Kataster surveyors, though it is situated on the watershed, and divides the Tschengels Valley and Glacier from the NE. arm of the Vedretta di Forno. The level showed it to be about as much loftier than the Viozzi Spitz as the latter exceeds the Saline (37 ft.), and for the present therefore its height may be assumed to be between 11,950 and 11,960 ft. (3,642·5—3,645·5 mètres), whilst it may be convenient and not inappropriate to christen it the Pizzo di Tschengels. It is probable that a fine pass might be made between it and the Monte Cevedale, ascending on the W. by the Tschengels Glacier, and gaining the head of the Val della Mare by the fine glacier of the same name. Lastly, a very interesting new pass might be made from the Val Gavia to the Val Bormina and Pejo, by the Gavia Glacier and over the S. shoulder of the Pizzo della Mare; whilst it would be well worth while, with a similar object, to examine the depression between the Viozzi Spitz and Saline, and that between the Palle della Mare and Giumella, though it is *possible* that the descent on the E. side may prove rather precipitous. The NW. and highest summit (Pizzo Alto) of the Tresero overtops its SE. neighbour by from 10 to 15 feet, and appeared to be about 40 and 120 feet lower than the Giumella and Pizzo della Mare respectively. This would make its height about 11,800 feet, or 69 feet less than that stated by Von Welden, whose determination is certainly in excess of the truth. Two barometrical readings on the summits of the Pizzo della Mare and Tresero give indeed a difference of nearly 200 feet between those peaks; but as the first was taken at 8.0 A.M. and the second at 12.45 P.M., this result cannot be considered reliable.

PASSO DEL FORNO (11,100 ft. ?—3,383 mètres).—SANTA CATARINA TO THE VAL DELLA MARE, BY THE NE. HEAD OF THE FORNO GLACIER, AND BETWEEN THE PIZZO DI TSCHENGELS AND THE VIOZZI SPITZ, *June 29.*—The ascent offers no difficulty whatever, and, except for the first quarter of an hour, the eastern side is also perfectly easy. This pass was also effected by the same party. Santa Catarina to foot of Vedretto di Forno, 1½ hr.; thence to right (N.) lateral moraine, at the foot of icefall, 1 hr.; along moraine, ¼ hr.; up slopes of rock and turf to right lateral

moraine of a glacier, descending from the S. side of the Pizzo di Tschengels, 1 hr.; and thence to the summit of the pass,  $1\frac{1}{2}$  hr. easy walking.

Total ascent, 5 hrs. The glacier on the E. side is a fine one, but bears no name upon the map. Bearing away to the left during the descent, and keeping down the N. side of the central portion of the ice-stream, the glacier was finally quitted for the left lateral moraine in 1 hr.; the highest malga in the Val della Mare reached in  $1\frac{1}{4}$  hr.; Pejo in  $2\frac{1}{4}$  hrs.; and the Bagni in  $\frac{1}{4}$  more. Total descent,  $4\frac{3}{4}$  hrs.

MONTE ADAMELLO (11,670 ft.?—3,557 mètres), ADAMELLO PASS (10,500 to 10,700 ft.?—3,200.5 to 3,261.5 mètres). BEDOLE MALGA IN VAL DI GENOVA, TO EDOLO IN VAL CAMONICA, July 3. — The Adamello was ascended, for the first time last year, by Lieut. Payer; but as his promised narrative has not yet appeared in Petermann's 'Mittheilungen,' it is not known what route he pursued. Mr. Tuckett and his companions having crossed the Bocca di Brenta from Molveno to Pinzolo (in Val Rendena) the previous day, proceeded on the evening of July 2 to the Bedole malga, at the head of the Val di Genova ( $3\frac{1}{4}$  hrs.). The next morning they ascended the Adamello viâ the Bedole Glacier, and afterwards effected a descent into the head of the Val di Miller, as the upper portion of the Val di Malga, a branch of Val Camonica, is called. Bedole malga, in the dark, to summit of cliffs bounding the Alp on the SW.,  $1\frac{3}{4}$  hr.; thence along the mountain-side, nearly on a level, to the left bank of the Bedole Glacier,  $1\frac{1}{2}$  hr.; over this to foot of final peak (which is not seen till the watershed is nearly reached),  $2\frac{3}{4}$  hrs.; and up the latter by the ENE. arête, 20 min. After a stay of  $1\frac{1}{2}$  hr., the nearly level arête leading to the lower and more easterly summit was reached in 10 min., and passing round the S. foot of the steep portion of the peak, a depression was reached in  $\frac{3}{4}$  hr., which proved to be situated immediately at the head of Val di Miller. On the left, a very steep and impassable icefall connected the névé above with a short glacier occupying a rocky basin immediately beneath the pass, whilst to the right some rather precipitous rocks seemed to offer a fair chance of effecting a descent. The head of the glacier beneath was finally gained in  $1\frac{1}{4}$  hr., the ice quitted by its right bank in  $\frac{1}{4}$  hr., the highest malga reached in 1 hr., the head of the Val di Malga in  $\frac{1}{2}$  hr., Sonico (Val Camonica) in  $1\frac{3}{4}$  hr., and Edolo in  $\frac{1}{2}$  hr. more. Total,  $6\frac{1}{4}$  hrs. up, 6 hrs. down. Mr. Tuckett is quite satisfied that there is a considerable error either in Oberstlieutenant v. Sonklar's determination of the height of the Adamello, or in that of the Presanella (Cima di Nardis) by the Kataster. Observations with the level from the former, as well as from the Pizzo della Mare, prove beyond a doubt that the Adamello is lower than the E. peak of the Presanella, though the difference does not probably exceed 20 ft. Now, if the height assigned to the latter mountain by the Kataster (11,688'—3,562.5 mètres) is assumed to be correct, about 11,670' (3,557 mètres) is got for that of the Adamello, which is precisely the figure given by Von Welden. There are, however, some grounds for suspecting that the altitude of the Presanella is from 100 to 200 ft. greater than the Kataster makes it, and in that case Von Sonklar's figures may after all be correct. It also appeared to Mr. Tuckett that the summit of the Caré Alto

(11,353'—3,460·5 mètres—Von Sonklar) is not more than from 50 to 100 feet lower than that of the Adamello, in which case its height would be about 11,600 or 11,750 ft. (3,535·5 or 3581·5 mètres), according to which of the two determinations of the latter is adopted. The view from the Adamello was of enormous extent, the Grand Paradis and Grivola (distant more than 150 miles) being clearly made out. It comprised, besides all the principal peaks of the Monte Rosa, Bernina, and Orteler groups, part of the Bernese Oberland, the Dolomites, Ziller Thal Ferner, Gross Venediger, and Gross Glockner, the last-named being especially distinct.

BRENTA ALTA, August 9.—Messrs. Ball and W. E. Forster, with Matteo Nicolasi of Molveno as porter, made the first ascent of the Brenta Alta from Molveno. Having no guide, and clouds being on the mountain, they had a good deal of difficulty, and lost time in finding their way; but they recommend future travellers to ascend this valley immediately south of that leading to the Bocca di Brenta; at the head of the valley to keep to the right, north of a projecting rock, till two high glaciers are sighted, above which rise the cliffs of the peak; then crossing the left or southern arm of these glaciers, to aim at a small cleft in the cliffs, the climb up which for the first hundred feet is the only difficult part of the ascent.

\* \* \* *This summary will be continued in the next number, should notice of any further New Expeditions reach the Editor.*

## NOTES AND QUERIES.

THE FATAL ACCIDENT ON THE MATTERHORN.—The following most interesting letter from Mr. Whympyer appeared in the 'Times' of the 8th of August:—

'Sir,—After the direct appeals which I have received from the President of the Alpine Club and from yourself to write an account of the accident on the Matterhorn, I feel it is impossible to remain silent any longer, and I therefore forward to you for publication a plain statement of the accident itself, and of the events that preceded and followed it.

'On Wednesday morning, the 12th of July, Lord Francis Douglas and myself crossed the Col Theodule to seek guides at Zermatt. After quitting the snow on the northern side we rounded the foot of the glacier, crossed the Furgge Glacier, and left my tent, ropes, and other matters in the little chapel at the Lac Noir. We then descended to Zermatt, engaged Peter Taugwalder, and gave him permission to choose another guide. In the course of the evening the Rev. Charles Hudson came into our hotel with a friend, Mr. Hadow, and they, in answer to some inquiries, announced their intention of starting to attack the Matterhorn on the following morning. Lord Francis Douglas agreed with me it was undesirable that two independent parties should be on the mountain at the same time, with the same object. Mr. Hudson was therefore invited to join us, and he accepted our proposal. Before admitting Mr. Hadow I took the precaution to inquire what he had done in the Alps, and, as well as I remember, Mr. Hudson's reply was, "Mr. Hadow has done Mont Blanc in less time than most men." He then mentioned several other excursions that were unknown to me, and