

the name of Tussetind, as an abbreviation of my own name Therese. Tusse or Turse is the Norsk for goblin or sprite.

'Tussetind is about 6,700 ft. high. The view was very grand. We descended by an easy arête on the E. side, and at 8 P.M. we reached a col below. We had now another night's walk before we could reach Høidals sæter, on the shores of Høidals lake. We passed to the E. of the big lakes at the mouth of Midtdal, and had a troublesome walk over some very vicious rocks, which did their best to irritate us in the dark of night, in which effort they did not, however, succeed. At daybreak on August 6 we waded a river coming from the Hestbræ tjern, and at 4 A.M. reached Høidal sæter, where the Doctor and Sulheim slept for 6 hours.

'At 11.30 A.M. we set off for the Hestbræpigger. We went due N., and at 4.40 P.M. reached the glacier, where we found very few crevasses. Two hours' walk over the glacier brought us to the foot of the western peak of the Hestbræpigger. We climbed it by a very narrow western ridge in 35 min. and built our cairn on the top. This peak is 6,895 ft. high, and the Doctor gave it the name of Sulheimspiggen, in honour of our dauntless companion and guide.

'Our next goal was Nørstedals sæter by way of the Midtdal, a route which proved to be much longer than it had promised to be when we were on the top of Sulheimspiggen.

'We left the top at 8.30 P.M., and at 11.30 it was pitch dark, and it seemed quite hopeless to proceed any further. Just then a capital idea struck Sulheim. He threw himself down on the ground and began to grope about in a most perplexing manner. Suddenly he struck a match and in a minute had made a blazing fire of reindeer moss, which the Doctor kept burning for 4 hrs. It burned with long, narrow, bluish flames, which gave out a beautiful light and much warmth, and which looked most picturesque in the weird surroundings. After a while Sulheim was snoring, and for about half an hour I too slept soundly, which much refreshed me.

'At 7 A.M. we reached Nørstedals sæter, just as some rain-drops were beginning to fall, the first we had met with during the whole expedition. Here we had some 5 hrs.' sleep, and dinner at 2 P.M., after which we went down the Fortundal and reached Fortun at 10 P.M., very content with our 5 days' expedition.'

THE PROPOSED JUNGFRAU RAILWAY.

WE have received a pamphlet or prospectus bearing this title enclosed in a portfolio with a number of well-executed maps and plans, and a fine panorama of the view from the summit of the Jungfrau. The following extract (p. 10) gives some details as to the route proposed to be followed:—

'The Scheidegg station of the Wengern Alp Railway, 2,060 m. above sea level, is supposed to be the starting point of the new line. From here the Jungfrau Railway will run on the western slope of the Fallbodenhubel, making straight for the foot of the Eiger

Glacier. Thence it will turn due east, and later on due south, in a tunnel winding round the solid body of the Eiger as far as the Eiger station, 3,100 m., which is to be laid open by galleries similar to those we find along the Axenstrasse. The tunnel will then continue in a straight line towards the Mönch and the Jungfrauoch, which it will reach at 105 m. below the surface, and will finally curve round the uppermost solid block of the mountain, reaching its endpoint on a plateau well known to the guides, at 4,100 m. above sea level. This platform lies about 65 m. below the snow-covered summit of the mountain, measures 25 m. by 30 m., and is free from snow during the summer months. From the level a lift, 65 m. high—probably something after the style of the American elevators used for building of twenty stories (*sic*) and more—will take the enterprising tourist to the highest summit of the Jungfrau, 4,167 m. . . . A corkscrew staircase will be fitted, so that the alternative will be given of doing the distance from the terminus of the line to the summit on foot. Members of the Alpine Clubs will be enabled to reach the summit of the Eiger from the Eiger station in comparatively short time. Similarly, being saved the exertion of a difficult ascent, and starting from the Jungfrau in a S.W. direction, they will have a much better chance for the grand glacier tour across the Aletsch Glacier and up the Eggischhorn.'

It will be noticed that the whole line above the Eiger Glacier station will be in tunnel, and the stations excavated galleries or caves, resembling the dwellings of ancient rock cities, or the retreats of hermits. Much of the success of the scheme would seem to depend on the verification of the assumption that the tunnel will be not only weather-tight, but exempt from changes of temperature and consequent infiltrations and rockfalls.

Should the belief of the promoters in these respects prove well founded, and should sufficient labour be available, there seems no mechanical reason why the line should not be made. The most formidable objections raised to the project in Switzerland seem to have been made from a sanitary point of view.

A disproportionately large portion of the pamphlet is devoted to an attempt to prove that on the score of danger to health no objection can properly be taken to the conveyance of a person in good health and of sound constitution from a level of 2,000 m. to one of 4,000 m. within two hours. The promoters quote a sort of affidavit from the members of a representative committee of the Swiss Alpine Club. 'We,' the committee write, 'having carried out ascents such as those of Monte Rosa, of the Wetter-, Schreck-, and Finsteraarhorn, of the Jungfrau, &c., are able to state from our own experience that we have never personally felt the influence of rarefied air. We may add that on returning from those ice-bound peaks we *always felt fresh and fit for work.*' In the fine glow of their enthusiasm the promoters go on to assert that 'what has been termed "mountain sickness" can always be traced back to an overdose of alcohol, or to a wrong diet, or to over-exertion during the ascent.' We should hardly like to go so far, although

no doubt the poor food and nasty drinks often supplied in Alpine inns may account for many of the indispositions of their guests. But we are disposed to agree with the authors that no great amount of physical suffering and comparatively few sudden deaths are likely to result from the success of such an enterprise as they contemplate, which has already its parallels in the Andes. They have, moreover, got an expert to illustrate their argument by an ingenious experiment upon two guinea pigs, one of which was shut in a revolving cage, where he had to work as on a treadmill, while the other was simply confined in a box. In the first case the guinea-pig became helpless and incapable when the pressure of the atmosphere had been reduced to the equivalent of that at 4,000 m., while the sedentary guinea-pig endured diminution to the equivalent of 8,000 m. before he gave in. This is meant to serve as an encouragement to the 45-franc-pigs whom it is proposed to transport in batches of at least a hundred a day to the top of the Jungfrau.

Æsthetic considerations are not neglected by the apologists. But they may find a still more pertinent one in the height (over 14,000 ft.) reached by railroad in the Andes. They boldly carry the war into the enemy's country, and denounce the athlete and the gymnast in good round terms. Having first met and crushed the mountaineer in argument, they proceed to throw him sops. He will be allowed, even if he climbs the mountain, to visit its summit *without a ticket from the company*; stations will be provided for him at the foot of the Mönch and Eiger, where guides will be in waiting to take him up those peaks; and he may even descend on foot to the Eggischhorn should he wish.

To come to practical details, the total cost of the line from the Scheideck to the top is estimated at 400,000*l.*; working expenses, &c., 8,400*l.* per annum; annual receipts, 28,800*l.*, the balance of which, after paying interest on 240,000*l.* four per cent. debentures, would provide a dividend of nearly 7 per cent. on a share capital of 160,000*l.* The trains are to be run by electricity, the motive power being obtained from the Lütchine. The scheme may very possibly be realised, and it would certainly be rash to treat it as a matter for ridicule. It will, no doubt, enable cripples to test to some extent the truth of Mr. Ruskin's dictum that there is no beauty above the snow line. It may be found possible to enjoy to some extent the glory of a summit view even under a shower of German and American adjectives and quotations from Bädiker. The artist who can endure a night or two with the guardians of the summit station—we regret no mention is made of any provision for *pensionnaires*—may secure some strange 'impressions' in the intervals between the trains. Years ago in these pages it was suggested that in the future one or two great peaks would probably be handed over as victims to that modern Minotaur the Circular Tourist. We deplore the profanation of the Jungfrau, and we sincerely trust the commercial success of the undertaking may not be sufficient to encourage rivals. But the Alps are wide and the world is wider.

Even should Switzerland become a nest of railway stations other regions will be left for those who do not share the ambition once expressed to the writer by an American from the Far West—'Sir, I wish to see the glasher region in a day from Bern without sleeping out; can you direct me to the best sample?'

NEW EXPEDITIONS IN 1896—(*continued*).

FUSSHORN. *July 13.*—In 1895 the Messrs. Hopkinson climbed the middle point of the range, which as seen from the Bel Alp or Brieg is, with the exception of the N.W. or highest peak, the most conspicuous point in the ridge.* On July 13, 1896, Messrs. C. Pilkington, W. C. Slingsby, E. Carr, and G. A. Solly gained the Fusshorn rocks from the Ober-Aletsch glacier, a little to the left of the great couloir running up to the N.W. of Messrs. Hopkinson's peak. Ascending over broken rocks and grass between this couloir and a secondary ridge running S.W. from the main one, they climbed a steep open couloir, the rocks of which were smooth, black, and water-worn, and crossed the upper part of the secondary ridge, gaining the crest of the main chain by steep and very loose rocks. A mass of flame-shaped splinters appeared to be the summit, but by skirting underneath it a less dangerous and higher point was found to stand on the junction of the secondary with the main ridge—a shaky tower of no great height. After they had swarmed up the N.W. end it was found that a narrow crest, part of which had to be passed by hanging on to the narrow flake of rock with legs dangling towards the Triest glacier on the east, led to a point some 150 ft. higher, but less conspicuous from many points of view, than the Messrs. Hopkinson's peak.

The descent was shortened by avoiding the couloir of black rocks and descending by the slopes on the other or northern side of the secondary ridge. The climb from the glacier to the summit, including halts, occupied 5 hrs., and the return to the same point less than 3 hrs.

ALPINE NOTES.

ADDRESSES OF MEMBERS.—The Honorary Secretary would be much obliged if any member could give him any information which would enable him to communicate with the following members, whose names appear in the Club list without any address, owing to their having availed themselves of Rule XVII. :—

J. R. Trevilian, elected 1863 ;

John Macpherson, elected 1865 ;

Major-General W. M. Campbell, † elected 1871.

* *Alpine Journal*, vol. xvii. p. 588.

† Major-General in 1872, present rank not known.