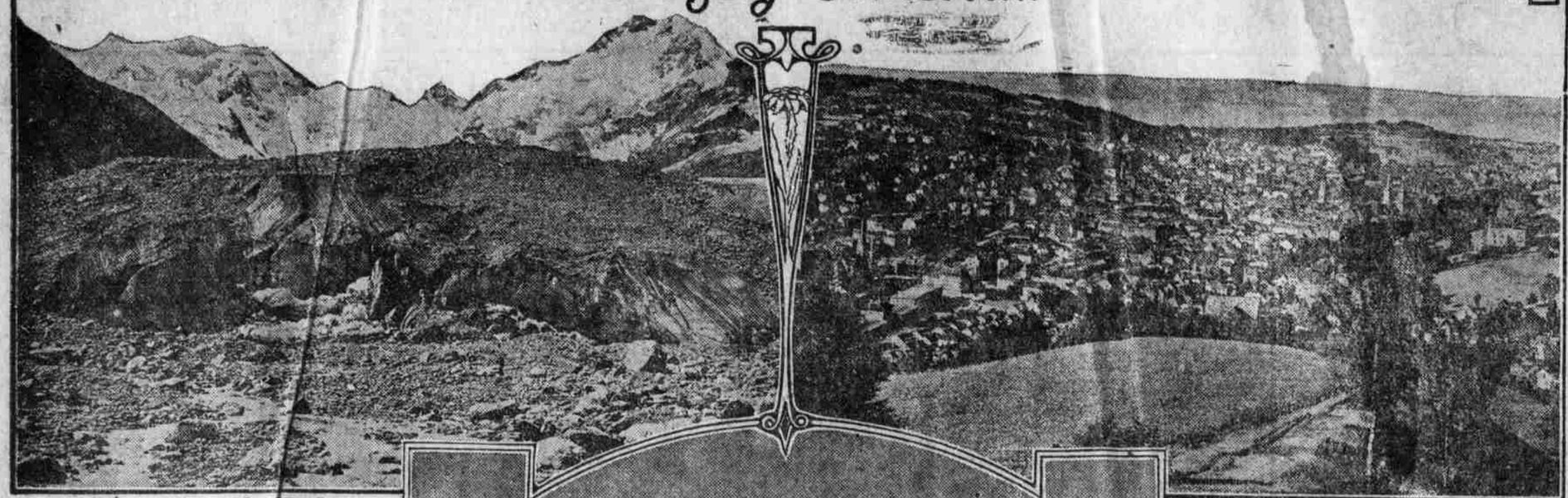
HARNESSING GLACIER STREAMS

How Switzerland Capitalizes Its Barrenness

By Gregory Underhill



MOUTH OF A GLACIER

ST. GALLEN, SWITZERLAND

WHO has not known Switzerland the past five years knows not the Switzerland of today. The cascades, the torrents, and rivers run there still, but they are controlled and utilized. The mountains rear their lofty heads, but not as of old. They are conquered and harnessed.

The early summer of 1911 indicated that the heat was to be unusual in Italy, and that we must leave our villa on the heights near S. Miniato for some cool retreat, and Switzerland was decided upon. Our approach thither was by Lago di Como, planning to remain a few days at Tramezzo, where the summer preceding we had enjoyed for nearly two weeks, the companionship of several American friends.

From Tramezzo we took steamer for Menaggio, crossed by the railroad to Porlezza on Lake Lugano, over which we sailed, past Lugano to Capo di Lago and by the "rack and pinion" railroad to Monte Generoso, conceded to offer the widest, most varied, and beautiful expanse of mountain scenery in Switzerland, its only rival the Gorner Grat.

In our approach down the Lake of Lucerne by the historic point where Tell jumped ashore, past the Rigi, and the many summits that rise from the shores of that historic lake, we began to observe the wonderful results of Swiss energy and ability. The rack and pinion railroad takes one to the summit of Pilatus, about 6,000 feet altitude, where the night may be passed in a large comfortable hotel, and returns you to Lucerne next morning for the moderate charge of twenty-five francs, covering all charges for the excursion. The rack and pinion also ascends the Rigi some 5,000 feet, on whose summits are several good hotels. The general impression made by such ascent was well voiced, I think, by an American girl, whom I overheard saying: "I was really disappointed with the Rigi, but I am glad I went up, for I should always have thought I had missed much if I had not gone." The funicular railroad takes one to Burgenstock, Stanserhorn, and also Sonnenberg and Gutsch.

As, even in this age of travel, not every one goes to Switzerland, or has observed the difference in principle of construction between the rack and pinion and the funicular, I may say here that the former has a middle rail on the roadbed, set with teeth deep and broad, and the motor car usually has four cylinders with similar teeth, each cylinder so successively revolving as to reciprocally insert its teeth between the teeth of the middle rail, and so force the car up. It usually descends by gravity, controlled by brakes, in either case moving at very slow pace, rarely six miles an hour. It is obviously much safer than the funicular, having so much more hold-[illegible] surface, and nowhere depending upon a [illegible] support. The funicular is run by a cable on the principle of the elevator. [illegible] the advantage of being usable on much [illegible]grades than the rack and pinion can [illegible] even at an angle over 60 per cent, [illegible] rack and pinion seldom exceeds 25 [illegible]nd usually runs at about 20 per [illegible] systems are armed with very ef[illegible], but in case of mishap I should [illegible] on the "rack and pinion."

[illegible]f the Wetterhorn is made by [illegible] from a cable dangling in mid[illegible] across the S. Gothard from [illegible]e had been interesting. We [illegible]t an even wilder pass, the [illegible] to Interlaken, mainly tak[illegible]k and pinion." The de[illegible]l region is remarkable, [illegible]nt years. The view of [illegible]ark at Interlaken was [illegible] as it was last year, [illegible]ummer it was com[illegible]ing snow and ice. [illegible]ness of the Swiss [illegible]m the old estab[illegible] selected because [illegible] sometimes ap[illegible]ck and pinion, [illegible]ath, and even [illegible] example, at [illegible]d from the [illegible] Church [illegible] who [illegible]dp [illegible]e

VILLAGE of ST. MORITZ

large open restaurant, salotto, and entrance room containing even post office facilities (except for the open spaces in the mountain side) you are completely entombed in solid rock beneath great bodies of snow and ice in the very heart of the Swiss mountains.

It is the loftiest tunnel in Europe, probably in the world, measuring ten feet wide and fourteen feet three inches in height, cut through limestone so hard and tenacious that a lining of masonry is unnecessary. The gradient is one in four, the track is three feet four inches wide; the last stretch starts from Kleine Scheidegg, on which only a score of years ago not a single house stood. Now several large buildings have been erected, hotels, shops, sheds, etc., and they are the center of great animation; the cries of railway and hotel porters, and the ringing of bells, mingled with the conversations carried on in every known tongue by tourists, are heard on every hand. Over 3,000 persons are carried to the Kleine Scheidegg in a single day. The Jungfrau railway is worked by electricity, and its engines are the finest mountain engines in the world.

The Wegen alps and the Jungfrau railway is not worked after October. Because of the heavy snowfalls, water is difficult to procure. From November to May, fresh water is entirely lacking, every drop required for drinking, washing, etc., and for the drills, is obtained from snow, melted by electricity. Fourteen quarts of snow make one quart of water. Incredible quantities of snow fall here, the entire lower story of the houses is buried in snow, and a thick wall of it rises in front of the windows. The worst foe of the colonists is the south wind, or "Fohn." Under its impact the buildings tremble to their very base. In the open air it is impossible to make head against the "Fohn," the only thing to do is to lie down flat on the ground and to hold on to whatever one can grasp, taking advantage of the lulls to advance a few yards.

The first station after entering the great tunnel is Eigerwand, excavated in the rock. Nowhere except on the Jungfrau railway is there a station blasted out of the interior of a mountain and yet commanding a magnificent view. In the evening an electric searchlight of 94,000,000 candle-power throws its beams far and [illegible]. It is said that by its light a [illegible] may be read in the streets of Thun, [illegible] miles distant. At last we reach Eismeer, [illegible] terminus, 10,370 feet above sea [illegible]. This station is a marvel of constructive [illegible]. A large hall, excavated, pierced [illegible] openings on the south s[illegible] wen[illegible] forms a comfortable ro[illegible]ch can be heated, with parquet floor and glass windows. On one side are the apartments of the stationmaster, with a post office, the loftiest in Europe; on the other, the kitchen of the restaurant and the larders. No wood or coal is used. Electricity does the cooking and heating.

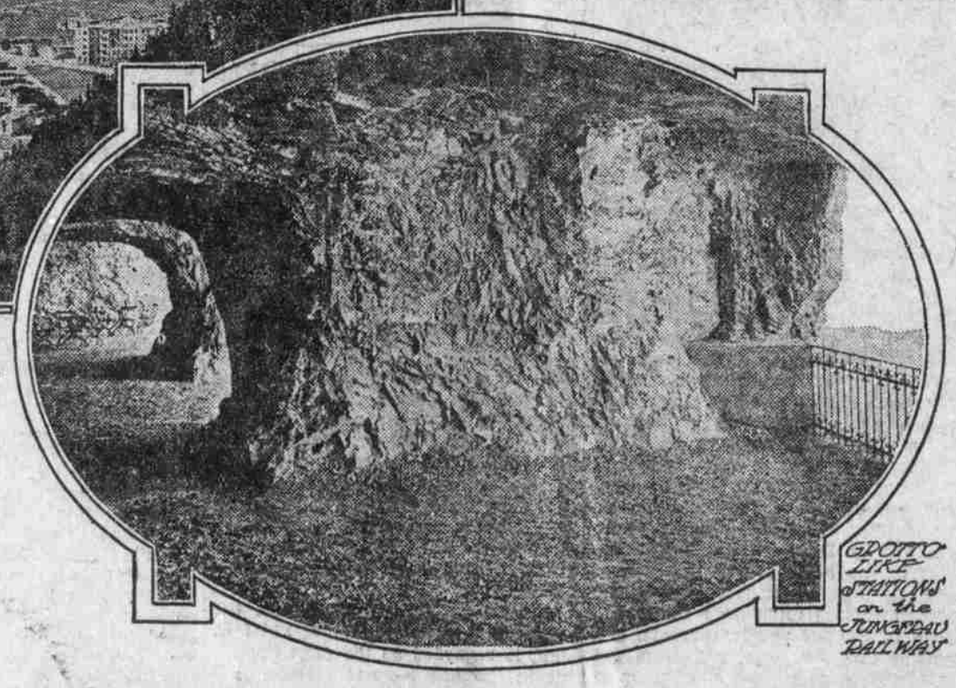
Soon the railway will be carried to a point near the summit, where an elevator, a genuine perpendicular lift, will take the tourist 240 feet to the very summit of the Jungfrau (13,428 feet).

A two days' drive over the Grimsel Pass took us through tunnels, under overhanging arches, by leaping cascades, roaring brooks and rivers, and endless chains of pines and firs, broken occasionally by a small holding of cleared land. A level bit of land is always cultivated, and chalets are raised here and there, the goats crossing our track, the cows, with their bells keeping time with the footfalls of our horses, and always in ever-shifting lines the everlasting hills, rising higher and higher. Who knows how they came there?

All along I have been impressed with the sagacity and energy with which the Swiss exploit their rugged country, whose chief assets are mountains and glaciers, ordinarily the most profitless. And, yet, in doing so, they kill the romance of mountaineering. The imagination that kindles the courage that dares, the glory of being one of the elect few to achieve such ascents, the fine ecstasy of conquest, the exhilaration of the hardly won far-distant reaches, all are to disappear before mechanism and finance. In about two years any gouty old gentleman and delicate, gray-haired (never old) lady on the summit of the Jungfrau, at 13,670 feet altitude, can look sympathizingly down upon the toilers below. Mont Blanc, the highest summit of the entire range, is being rapidly harnessed clear to its summit, with its equipment of rack and pinion. Even the Matterhorn is partially equipped with fixed ropes, and some attempts at paths have been made. On can reach the summit of the Rigi and return in a few hours, or remain in a comfortable hotel.

I have alluded to the exploiting of the mountains. The glaciers are being similarly utilized. All the mountain railways are run by electricity, so are the cars in passing through the Simplon Tunnel. Soon the S. Gothard line will be electrified, and in turn the other railroads will follow. The only hindrance is the delay and first cost in substituting electric motors for steam. As I drove by the fierce rushing torrents, mainly fed by snow and glaciers and apparently unfailing, I estimated that at no distant day Switzerland would supply electricity profitably not only for its own requirements, but also for nearly all Germany. In time those snows and glaciers are to pay the entire expenses of the republic, averting the necessity of taxation. A gold mine will give out; those mountain summits and glaciers will not.

The Italians were shrewd and able in utilizing, capitalizing the forestiert, but the Swiss are far in the lead, the most highly organized, scientific absorbers (another word nearly escaped me), I think, on the face of the earth. When I found myself taxed for the band I protested. I had not asked for any band, or agreed to pay for one; I would pay something if they would not play. Of course, it ended in my paying. A Kursaal tax is levied on tourists, through the landlords. A friend of mine protested that her mother, past eighty, never entered it. The official replied there is no requiring such payments, but your landlord will have to pay if you do not; she paid it.



GROTTO-LIKE STATIONS on the JUNGFRAU RAILWAY

The railroads are practically all owned by the government, and the rates are high; the mountain rates, very high. Of course, as they are expensive, and the season is short, they should charge accordingly; but I have paid 50 cents a mile for each of my family. All trunks are weighed and charged for at high rates. On the mountain railroads even the hand-pieces are so charged. Not every one, these tunnel-days, has crossed the Passes, and noted the admirable road-engineering in which the Swiss, as well as the Italians, are past masters. And they protect their roads; automobiles being allowed only on certain roads and passes, and at certain hours. We might well take lessons from them. Automobiles, like the railroad cars, should have their special roads, and be restricted to them.

In the season Switzerland is a mob. The extreme tunnel road to Eismeer, only six miles long, is carrying three thousand passengers a day, running trams in three sections, at fourteen cents a mile. The income is easily reckoned. I should advise all Americans to time their visit to Switzerland for June or September, unless they are fond of "winter sports" and are strong enough to bear them.

Every winter sees a decided increase [illegible] visitors who come to slide down hill, ski [illegible]nd revel in the snow and ice. Tobogga[illegible] of three to four miles, run with prof[illegible] guards, are arranged; the return a[illegible] made by railroad or other similar con[illegible] Artificial ice ponds, if natura[illegible] near, are cleared of snow fo[illegible]

Switzerland is to be as m[illegible] resort as a summer one [illegible] short, the canny Swiss ar[illegible] money out of snow and ice[illegible]

SWEET SLUMBER BROUGHT BACK

Mrs. White, Unable to Sleep Tells How She Brought Back Natural Sleep.

Gastonia, N. C.—Mrs. Ellen White, of this city, says: "I suffered for several years with womanly troubles. I could not rest at night.

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"I was troubled with acne for three long years. My face was the only part affected, but it caused great disfigurement, also suffering and loss of sleep. At first there appeared red, hard pimples which later contained white matter. I suffered a great deal caused by the itching. I was in a state of perplexity when walking the streets or anywhere before the public.

"I used pills and other remedies but they failed completely. I thought of giving up when nothing would help, but something told me to try the Cuticura Soap and Ointment. I sent for a Cuticura Booklet which I read carefully. Then I bought some Cuticura Soap and Ointment and by following the directions I was relieved in a few days. I used Cuticura Soap for washing my face, and applied the Cuticura Ointment morning and evening. This treatment brought marvelous results so I continued with it for a few weeks and was cured completely. I can truthfully say that the Cuticura Remedies are not only all, but more than they claim to be." (Signed) G. Baumel, 1015 W. 20th Place, Chicago, Ill., May 28, 1911. Although Cuticura Soap and Ointment are sold by druggists and dealers everywhere, a sample of each, with 32-page book, will be mailed free on application to "Cuticura," Dept. L, Boston.

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[illegible] a man is chicken hearted [illegible]ldom henpecked.

[illegible]ield Tea, by purifying the blood, eradi[illegible] Rheumatism, Dyspepsia and many [illegible]nic ailments.

[illegible]ll things are for the best—and [illegible]ry one imagines he's the best.