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SWITZERLAND BUILDS THE MOST UP-TO-DATE ALPINE ROAD.

By H. W. THOMMEN.

(*Swiss Industry and Trade*, December, 1945.)

With the removal of the war-time restrictions on motor traffic caused by fuel and rubber shortage, the roads in all countries are again gradually filling with cars that have been jacked up for so many years and whose drivers have so greatly missed the delights of carefree travel to all parts of the globe. Motor touring will also begin to revive as the long-denied human desire to travel abroad clamours for satisfaction, and it is quite certain that many people will defer seemingly more urgent necessities in order to be able to escape from the towns in which they have so long been pent up. It will be a great relief for many of these to be able to cross the frontiers of their own country again as soon as the difficulties encountered in securing visas, the foreign currency restrictions and all the many other obstacles to a free international intercourse are gradually removed. The ardent desire of innumerable motorists throughout the world to travel abroad is primarily directed to Switzerland, the wonderful alpine country in the heart of Europe which by virtue of her scenic splendours and her magnificent alpine roads has for decades attracted hosts of motorists and has, even in recent years, remained the object of their dreams.

Switzerland is preparing for this moment by developing her network of alpine roads on a grand scale. The Susten road, which took eight years to build, can reasonably be regarded as the most up-to-date alpine road in existence and is certainly one of the finest. This new masterpiece of Swiss road-building will be put into service next summer and the last touches will be added during the winter and spring. There can be no doubt that this alpine road will immediately become the primary destination of a great many motorists and other tourists from Switzerland and all other countries of the world which throw open their frontiers. Two factors make this new alpine pass of paramount national and international importance and destined, therefore, to attract a correspondingly large traffic. In the first place, it offers the motorist a welcome choice of routes whilst passing through our country and discloses to his eyes a hitherto unknown mountain region of untold beauty. The second factor — and probably the decisive one — is the Susten Pass, the first alpine road in Switzerland, and for that matter in the whole central Alps, to be built expressly to meet the requirements of motor vehicles, thus presenting a very real attraction for the motor tourist. The

prospects it offers for developing and exploiting the qualities and performance of a car make it incomparably superior to the alpine roads originally intended for horse-drawn vehicles which were subsequently brought up-to-date as far as possible but still rest on the same foundations as they were originally built on.

Geographically, the Susten road connects the Bernese Oberland and the Reuss Valley, which in turn gives access to the St. Gothard region and consequently to one of the most important junctions of the alpine network. It is just as easily accessible from Interlaken and the world-famous tourist district at the foot of the Jungfrau, and from Lucerne via the Brünig Pass, as it branches in Innertkirchen on the upper Aare eastwards off the traditional Grimselstrasse.

With a grand show of all the arts of modern road-building it then climbs a full 5,000 feet up to the main tunnel at 7,200 feet, then to fall in no less daring sweeps 4,200 feet, finally joining the St. Gothard road in Wassen, which is surely familiar to every traveller in Switzerland with its white church tower which can be glimpsed three times when passing in the train.

In the course of its 30 miles, the Susten road therefore offers to the motorist, hiker and cyclist an abundance of overwhelming views and unforgettable impressions of the might and splendour of the Alps. We first pass through wild romantic wooded gorges high above the boiling mountain torrent to the broad valley of Gadmen, and already here the road begins to wind in the extravagant loops that are its outstanding technical feature. The actual climb to the summit of the pass does not begin till after Gadmen. The traveller can see from afar the huge bastions of the turns that cling to the rocks like eagles' nests and from which, a few minutes later, he enjoys the first view down into the valley. He takes in the bold buttresses, like huge balconies, over which the road skirts the steep precipices and from which he constantly commands a splendid panorama of marvellous mountain scenery. The frowning faces of the Wendenstöcke and Titlis rear up in all their splendour above the road. A world of eternal snow and ice opens up in ever-increasing magnificence as he approaches the summit of the pass behind which the Sustenhorn and Gwächtenhorn tower in state. The road now turns into the valley and rises to the so-called "Himmelrank" which offers a wonderful view back into the valley. The grey-green ice and moraine waste of the glacier are already far below the surface of the road.

And now we reach the highest point of the road, a tunnel over three hundred yards long. When we emerge on the other side the scene suddenly changes. Framed in the tunnel entrance we see the frowning

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range of the Uri mountains. After negotiating a steep cliff-face the road drops into the lonely Meien Valley along the shoulder of which it now slowly and regularly descends mile after mile until it finishes in one last flourish of daring constructions.

The valley narrows to a formidable gorge in the depths of which runs the foaming Meienreuss. Interweaving marvellously with the loop tunnels and bridges of the St. Gotthard line, the road passes at a dizzy height above the river. A last bridge spans the tremendous abyss between towering walls of rock, it seems to lead straight out of a tunnel into empty space and then disappears into a second tunnel on the other side. We look down for the last time into the yawning chasm, pass underneath the railway line and suddenly see Wassen in the distance. We have reached the St. Gotthard road and can now drive down to the lake and town of Lucerne or up to Göschenen and Andermatt, and from there southwards across the St. Gotthard into the Tessin, westwards across the Furka into the Valais or eastwards across the Oberalp into the Grisons.

As no pains have been spared in the construction to make it safe for traffic, this trip along the Susten road is a carefree experience for the motorist, such as is seldom offered by any other alpine road. The road is 20 feet wide all the way and this permits him to drive with complete assurance and without the fear of meeting other vehicles at steep places or, what is hardly less annoying, waiting at special recesses to let oncoming traffic pass. Another pleasant feature is the even gradient mile after mile; it is kept at a maximum 8 % only increasing to a little over 9 % at one or two especially difficult points. Still more decisive for the full utilization of the engine power and the maintenance of a regular driving speed is the lay-out of the road. By clever exploitation of the lie of the land it avoids the "stairs" of closely-following hairpin bends that distinguish so many other alpine passes, and surmounts the various valley levels on both sides of the water-shed in a few wide loops and the minimum number of turns.

The turns themselves are designed on a particularly grand scale. They have a radius of at least seventeen yards and are slanted at 12 %, so that they can be taken in one sweep. In addition the gradient is reduced to such an extent that the resistance is hardly increased in comparison with the straight stretches and it is seldom necessary to change gears. Besides this, the track is seven feet wider, so that the meeting of traffic coming from the opposite direction does not represent any hindrance or danger, and finally the small sets used for surfacing the road guarantee a minimum wear and tear on the tyres, which is also an important factor.

On the open stretches, however, the constructors of the Susten road have shown the greatest consideration for the requirements of modern motor traffic, so that the motorist can get the most out of his car and its engine. The radii of the curves are in every case so large and the view ahead in the bends is so open that everywhere the optimum speed can be maintained with absolute security. In this connection it is of special interest to note that bridges which coincide with a bend in the road follow the same curve as the adjoining stretches. They therefore present no obstacles to the driver, as do so many bridges on other mountain roads with their angular approaches, but

can be taken at normal speed, thus making for greater safety.

It testifies to the high standard of road-building in Switzerland that not only the road track of the bridge is curved accordingly but that the whole construction as such is arched, the stability being guaranteed by a facing on the convex side.

The tunnels are also built with a view to the demands of maximum road safety. There are raised borders on both sides of the track to prevent cars from touching the side walls. Where the pedestrians cannot avoid the tunnel by a special footpath, one of these borders is designed as a pavement to offer protection against motor traffic. For the same purpose of maximum safety lateral windows are let into the long tunnels and those which penetrate too far into the mountain to receive the natural daylight are artificially illuminated. The cross-section of the tunnels is flat and squat, this serving likewise to increase the road safety as there is no sharp inclination of the abutments, forcing the driver to keep to the centre of the roadway in order to avoid collision with the rock.

In view of the generous way in which the whole road has been designed, we need hardly mention that the constructors have devoted the greatest care even to very minor points. Various types of delimitations are used to ensure a perfect control of the traffic and the best possible view ahead: low outside walls or iron railings of the usual construction or rows of low stones spaced out to permit a free view into the valley without sacrificing their primary function of guiding the driver. Ample parking spaces for cars and bicycles are provided at the most beautiful parts of the road, let into the curves or situated at the exit of the main tunnel, and wherever a natural recess or the site of a clearing deposit offers the necessary space. Simple fountains made of some substantial material already at hand, with a tree trunk as trough and a little trickle issuing from a rock offer welcome refreshment both to the steaming radiator and the parched throats of motorists and other travellers on the Susten road.

Finally there is the desire, evident from beginning to end, to design all the supporting constructions and every detail of the road itself in a manner pleasing to the eye. From the massive arches and natural stone finish of the bridges and the skilful arrangement of the buttresses and retaining walls to the last well-proportioned road-stone hewn from the fine "matinal" of the district, we recognise both the revival of the ancient artisan tradition and the application of the latest progress in road-building. This makes the Susten road not only an important new alpine traffic route but also a splendid masterpiece of modern Swiss road engineering and an eloquent witness to the interest shown in Switzerland in the development of communications and the desire to offer foreign visitors only the best.

In addition to these visible qualities of this most recent Swiss thoroughfare the expert will discover many other engineering achievements. Complicated problems are inherent in the lay-out of a traffic route of this type in the mountains and the multifarious natural factors of topographical, climatical and meteorological description for which it was only possible to find the ideal solution after many years of study and repeated modification of the original plans. For example, it is not by pure chance that the road keeps to the south slope of the valleys through which

it passes, but in order that the spring sun may melt the snow many weeks earlier than would be the case on the north slope. Moreover, if the road runs for many miles high up on the slopes of the Meien Valley, where it passes to a large extent through sections in the rock and over artificial embankments instead of in the bed of the valley where less labour and expense would have been required, this is not without its reason. In winter the avalanches pass right over the road into the valley without covering it with tremendous masses of snow, and even the avalanches on the other side of the valley, which often sweep up the opposite slope, cannot reach it and damage its bridges and other constructions.

The new Susten road is also laid out with a view to the villages and agriculture in the districts through which it passes. The first principle was to take as little cultivated land as possible in order not unduly to reduce the already meagre means of existence of the inhabitants. For this reason the road has been let into the mountain-side at more than one place where it could quite easily have been built on the flat. It was the aim, however, that the road should link up the solitary villages but not dissect them and it has therefore been led round these villages and hamlets, even if considerable additional expense was entailed.

Finally long stretches of the old narrow road which the two cantons, Berne and Uri, built already 130 years ago were made available to pedestrians by connecting them with the motor road which occasionally passes over them. All these problems were solved in the best possible way to make the Susten road the perfect alpine pass.

In this way with the considerable financial assistance of the Confederation — in accordance with the constitutional structure of Switzerland — the two cantons concerned have not only realised a magnificent achievement in the Susten road, but also a means of communication of the utmost importance and a work of great aesthetic value.

This route is now ready for thousands of visitors, from Switzerland and all other European countries and even from other continents who are already looking forward to visiting a hitherto unexplored part of Switzerland and seeing one of her proudest achievements in road-engineering.

OUR NEXT ISSUE.

We intend to go to press on Friday, March 29th, 1946, and take this opportunity of thanking the following subscribers for their enlarged subscriptions:—

Miss A. Wiedmer, A. Rueff, H. Monney, A. G. Pluess, C. Hagenbach, E. Dubois, F. Eggar, C. Baerlocher, A. Steiner, A. Knapp, E. Steiner, L. J. Faivre, R. A. Merz, Mrs. Th. Lunghi-Rezzonico, S. Lorsignol, O. E. Simmoth, A. Biucchi, H. Frutiger, M. Lienhard, L. Lindhurst, Mrs. H. Sharp, M. Wintsch, R. Back, A. Hohlfeld, A. Strittmatter, M. Zullig.

'LA VRAIE CIVILISATION.'

(This entertaining exhilarating account of a trip to Switzerland is reprinted, with acknowledgement, from the Oxford paper "Isis," February 6th.)

The one o'clock London — Paris train from Victoria (the time varies according to the tides) is filled with English and French business men, American army officers, U.N.R.R.A. service women with bright enamelled faces ready for the Continent, and a sprinkling of frightened prostitutes returning to their native land.

At Newhaven and Dieppe the completion of the thirty-three forms required for a visit to Switzerland bears fruit in the shape of two single tired stamps from an official who, on the French side, wears no uniform. In the queue at the douane a little French girl whispers to her mother, 'Mais, alors, tout le monde parle anglais, maman.'

Dieppe bears the traumata as well as the scars of war — a restless cafard, seasoned by the lawless elements of ex-prisoners and discharged soldiers. From their first-class compartments passengers have ring-side glimpses of the brawls outside waterfront cafés. The train, well-lit and heated, and infinitely more comfortable than its English counterpart, proceeds slowly through the night and arrives in Paris at 5.30 a.m. the next morning. Those who did not have cars to meet them were just unlucky. There are no taxis in Paris, there is little food, the electricity is switched off at 7.30 on alternate sides of the Seine every morning, and — above all — THERE IS NO HEAT. The average Parisian is cold, cold, cold, all over him, all of the time.

Though Paris still has its charm, the intellectual atmosphere of a city that names its streets after authors, the somnolent *je-ne-sais-quoi* of the quays, yet it has tasted morally — far more than Naples — of the aftermath of war. The famous joke is still current where a German officer, entering Picasso's studio, exclaimed in horror 'Did you do all this?' To which the painter replied 'No; you did.' Most English people imagine (if such a thing is possible) that Paris bread was put back on the ration, after having been taken off for a month, because there wasn't enough to go round. The truth is that the Parisians were so hungry that, when bread was de-rationed, they made themselves gravely ill eating too much of it.

Nevertheless it is possible to eat 'trop bien,' as one Frenchman put it to me, in the many brilliant little 'marché noir' restaurants dotted around Montmartre — Le Rendezvous des Bretons, Le Petit St. Benoît, Le Gafner, to name three. Paris still lives, as Sartre, considered her most important literary figure to-day, claims.

From Le Bourget aerodrome, Airfrance (a concern which, I think, is optimistic in its aspirations to 'span the world') takes you to Geneva in a pleasantly converted JU troop-carrier. I felt I was about the only Christian in the aeroplane and longed for a false nose. Out of those I travelled with, I was later to meet four — still wearing their vast gold Croix de Lorraine (to show their patriotism) — in the Palace, Gstaad.

At Cointrin airport, Geneva, most of us bought a large bag of bananas, tangerines and grapes, costing a few centimes. As I had no Swiss money, my first job was to telephone. I was surprised to find

