

**Zeitschrift:** Helvetia : magazine of the Swiss Society of New Zealand  
**Herausgeber:** Swiss Society of New Zealand  
**Band:** 21 (1958)  
**Heft:** [3]

**Artikel:** 75 years of the Gotthard Railway. Part 1  
**Autor:** [s.n.]  
**DOI:** <https://doi.org/10.5169/seals-942438>

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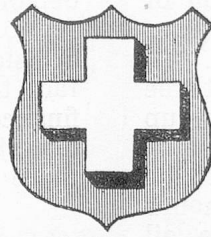
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# HELVETIA

MONTHLY  
PUBLICATION  
OF THE



SWISS SOCIETY  
OF  
NEW ZEALAND (INC.)

GROUP NEW ZEALAND OF THE NEW HELVETIC SOCIETY

21st Year

MARCH, 1958

Hamilton

## 75 YEARS OF THE GOTTHARD RAILWAY

THE idea of connecting the North and the South of Europe, in the most direct manner, by means of a railway line through, or over, the Alpine barrier arose soon after railways had been invented. Its realisation, however, was still delayed for several decades. The original conceptions centred mainly on a railway through the "Gotthard massif," and on one from Coire over the "Lukmanier Pass," into the Canton of Tessin. The laying of rails over the Eastern Alps was put forward by Mr. Richard La Nicca of Coire, probably the first engineer to propose the construction of an Alpine line based on comprehensive studies.

The Gotthard Railway Company (GB), with its Headquarters in Lucerne, was founded on the 6th December, 1871. Its Board of Directors, acting during the construction period, consisted of Dr. A. Escher, National Councillor, as Chairman, of Mr. J. Zingg, Cantonal Government Councillor, as Vice-Chairman, and of Mr. J. Weber, State Councillor of Berne, as a third member. Mr. R. Gerwig, Construction Director, was designated as Head Engineer for the direction of the construction work.

In August, 1872, the GB entrusted the task of constructing the main tunnel (Gotthard Tunnel) to the "Entreprise du grand tunnel du Gothard Louis Favre and Cie" in Geneva, managed by Mr. Louis Favre, Civil Engineer; the work was started at the northern entrance in October, and at the southern entrance in September of the same year.

### Gotthard Tunnel:

It was on the main tunnel (15,002.64m. or 9 miles 562 yds.) that work was started first, as it represented by far the most important and time-consuming job within the whole network. The GB entrusted this work, in August 1872, to the "Entreprise du grand tunnel du Gothard, R. Louis Favre and Cie," which undertook to complete the tunnel within eight years, at an all-inclusive price of 48,000,000 francs. Work started on the sou-

thern side on the 13th September and on the northern side on the 9th October, 1872. To start with, the drilling of the rock had to be carried out by hand. Only in spring 1873 could pneumatic drills (percussion drills) be put into operation, which was even then restricted to the heading face for a long time. The average progress achieved, per day, was 64 to 75 cm. (2ft. 1 in. to 2 ft. 5½ ins.) when drilling by hand, and 3 m. (9 ft. 10 ins.), given very favourable rock conditions even 4 m. (13 ft. 1 in.), when pneumatic drilling was used. The so-called Belgian Tunnelling Method was applied, i.e., a preliminary crown drift, or top heading, was driven, widened out sideways to complete the whole arch of the heading (Calotte), and then the vault was lined with masonry; this was followed by the excavation of the bottom cut, near the centre line of the floor, and, subsequently, of the still remaining side portions, the work to be completed with the construction of the masonry abutments. Various types of pneumatic rock drills were used. It would appear, however, that percussion drills of the Ferroux and Mackean/Seguin types gave the best results, although they would seem very primitive today. Whereas during the construction of the Mont Cenis-Tunnel gun-powder had still been used, the blasting in the Gotthard Tunnel was carried out with dynamite.

Compressed air served to ventilate the workings, and to drive rock drills, pneumatic locomotives, and pumps.

Until the constructors had actually broken through the last rock barrier, they were never able to solve the problem of producing adequate ventilation, the power for which they obtained from the waters of the Reuss, Tremola and Ticino rivers. This had, of course, a very adverse effect on the working performance inside the tunnel. Air conditions in the workings were extremely bad, especially in the tunnel sections situated away from the heading face. Owing to lack of compressed air, pneumatic rock drills could only be used at the heading face for a considerable period.

At a daily average, 2480 men were working near the entrances of, or inside, the tunnel. The northern workings stood under the direction of Mr. von Stockalper and the southern workings under that of Mr. Bossi, both civil engineers. To start with, the work was carried out in three eight-hour shifts. Owing to the great heat (up to 32.9 deg. C., or 91 deg. Fahr.) and because of the insufficient ventilation, the shifts had to be re-arranged, later on, and reduced to five hours each. Lighting was provided by primitive oil lamps. The workers had to buy the oil themselves—a transaction on which the Building Company even made a profit. Hauling inside the tunnel was carried out by steam engines, near to the entrances, and by pneumatic locomotives, horses or mules, in the inner workings.

(To Be Continued)

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## News of the Colony

THE SWISS CLUB OF WELLINGTON held their first picnic of the season on January 26th., near Kaitoki, and the few who braved the fairly bad weather had a very good time.

—L. Hess.

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### TARANAKI SWISS CLUB PICNIC

THE annual picnic of the Taranaki Swiss Club was held on Sunday, February 16th., before an attendance of 470 people, at Te Ngutu Park. The day was fine. Visitors were present from the Hamilton Club and also from Palmerston North. The feature of the day was the "Steinstossen," which was won by last year's champion.

John Kuriger 1st., 29 ft. 2½ ins; A. Muller 2nd., 28 ft. 1¼ ins; J. Muller and E. Schicker equal 3rd., 28 ft. 1in.

The next game was the "Kegelbahn," which was hotly contested. The winners being as follows: Men, L. Schuler 1st., B. Steiner 2nd., B. Machler and L. Kistler 3rd and 4th equal. Ladies, Mrs. W. Fluhler 1st., Mrs. J. Schmid 2nd.

Naildriving: A. Hermann 1st., J. Kuriger 2nd. Ladies, Mrs. Burmm and Mrs. F. Gwerder.

Chain stepping: B. Steiner 1st., G. Muller 2nd.

Other sports were fishing which drew a lot of keen fishermen. The Swiss Orchestra played some good dance music, the floor being well patronised until the late hours of the evening. My thanks go to the helpers who made the picnic such a success.

—J.S.

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### HAMILTON CLUB

ON our Social on the 16th February, President Arnold Biland informed that the proposed

project to purchase our own clubhouse had to be dropped. He especially stressed the point and deplored the fact that lack of unity amongst a few of our members was the crucial point in the decision and was very regrettable, because of the fact that a substantial amount of the necessary finance was assured. Nevertheless he thanked everybody who initiated and help in the project. More luck next time.

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### SWISS SOCIETY OF NEW ZEALAND

THE Committee of the Swiss Society of New Zealand held a nine-hour meeting last February 9th., at Walter Risi's, our president, place in Ngaruawahia.

With pleasure we received a report from our Treasurer, Toni Loertscher, on a substantially improved moral for the payment of overdue subscriptions and member fees. Nevertheless, there are still about two dozen members with arrears until back to 1955, and we do hope they realise that the Committee can only do effective work with reasonable support from these last mentioned members. If every member pays his fees in time we really can think of reducing fees.

Our President, Walter Risi, foresees that it will be possible to reduce substantially the subscription fee for the HELVETIA, provided members show their interest and subscribe to our only means of continual general information and contact. The HELVETIA should be welcome in every New Zealand Swiss home, and—**the more that subscribe the cheaper we can supply.** On the other hand, we want to be "able" to provide retired Swiss, who held true fellowship during long years, with fee-free copies.

The Committee decided to offer support to an old Swiss in need of a loan on secured reayment. The loan will be between £60 and £100, and the repayment spread over about 5 years, provided the conditions of the offer are accepted.

The "Wellington Swiss Club," by having its rules endorsed, figures now as a Branch of our Society. We shake hands with our Wellingtonian Swiss, and we wish them all the possible success. Its another step forward for Swiss brotherhood in New Zealand.

And the "Auckland Swiss Club" too, Toni Sidler announces, intends to become a Branch of the Society. There are real difficulties still to be overcome, but goodwill on both sides will surely beat them. We record the wish of the Auckland Swiss with enthusiasm.

The small badge of the Society has run out. Offers from Switezrland have shown a considerable increase in price, forcing us to further inquiries.