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could be put into service, the figure of 600 million francs would, with the cost-inflation running at between 7 and 8 per cent per annum, as at present, possibly have doubled or trebled by the time the first U or S-train could run.

The project has been decisively rejected by the voters, in Zürich town by 101,021 against 67,832 votes, and in the rest of the canton by 234,230 no against 177,362 yes. There the matter will rest for some time to come. A new project will now have to be worked out to solve the traffic problem of Zürich and the thousands of commuters who daily go to town and leave again in the evening. Many of those who live outside but work in Zürich go there by car as early as 6 a.m. because otherwise they find no parking space for their vehicles. They then go to some of the many new

restaurants which serve breakfast at that unholy early hour and proceed to work by 7 o'clock. It is a fact that some of the main thoroughfares of Zürich are sometimes hopelessly clogged up by traffic, comparable to Hyde Park Corner or Piccadilly Circus at peak time. So obviously some solution will have to be found as an alternative to the "U and S" which the population has now rejected. Of the outcome of the federal vote concerning abolition of confessional inequality or discrimination was more or less a foregone conclusion, the "U and S" proposal was not. Feeling had run very high and during several weeks before voting day every household had been bombarded with propaganda literature for and against.

In Great Britain the ultimate decision whether, for example, the

London Ring Road Motorway Scheme is being put into effect — with everything it means — rests with the Greater London Council and the Central Government. In Switzerland on the other hand, it is the men and women of voting age who decide whether Zürich is to have an underground railway or not. Whether this system of very direct democracy is a good thing or whether it would be better to have such problems to be decided by experts seems to me to be an open question.

And here, to conclude this letter from Switzerland, is a dismal news item. In some boroughs in the canton of Zürich, amongst them Küsnacht, the postal deliveries will be reduced from 2 to 1 a day as from 4th June, with none at all on Saturdays.

*Gottfried Keller*

# TECHNICAL ITEMS

## NEW SWISS GADGET: THE ELECTRIC NAIL FILE

At the International Exhibition of Inventions and New Processes in Geneva, a silver medal was awarded to a firm at Court (Berne, Switzerland), for the battery-run nail file which it recently invented. Called Quicklime, this precise and inexpensive little instrument allows one to file one's finger and toe nails in record time. It is driven by a small motor running on a battery and fitted with an everlasting sapphire grinder impossible to wear out. As the file works without any perceptible vibration, nails are filed perfectly smooth, without any risk of the nail polish getting chipped. The Quicklime can also be used for flattening calluses and corns or pushing back the cuticle.

## HIGH SPEED EMBROIDERY MACHINE

A short while ago, the textile firm of P. Keller at Jonschwil (St. Gall, Switzerland) took possession of the 1,000th automatic embroidery machine, type SS 55, made by A. Saurer at Arbon (Thurgau, Switzerland). It is only 18 years since the first machine of this series was delivered, in December 1955 to be exact. Since then it has been sold for the most part abroad (exports represent about 90% of the total output) in some thirty countries, mainly France, the United States and Japan. About the same time as the delivery of this 1,000th machine, the firm also presented its latest creation, a very high speed automatic embroidery machine. This very modern machine, which is endowed with all possible technical improvements, possesses in particular a capacity of output 30% than similar machines at present on the market. Its frame, which measures 14 m long and 3 m high (i.e. just under 50 ft. long and 10 ft. high), makes 170 linear movements

per minute. A special device has been devised to avoid vibrations, so that the 1,048 needles work with a precision of 1/10th of a mm. One is amazed to discover that this huge automatic machine working at a tremendously high speed is powered by an electric motor of only 2.5 h.p.

## SWISS RESIN FOR A BRAZILIAN BRIDGE

The builders of the fifth longest bridge in the world are using a Swiss epoxy resin for assembling the 3,200 prefabricated concrete elements forming the roadway of the new bridge in the Bay of Rio in Brazil. This bridge, on which work has been going on for some months now, will connect the town of Rio de Janeiro to that of Niteroi. Consisting of identical sections placed alongside each other and each spanning the water over a distance of some 5¼ miles, this bridge called for special construction methods making it possible to operate from several points at the same time. For the roadway of the bridge, 86.6 ft. wide, the system chosen is the cantilever system based on prefabricated voussoirs, a technique perfected and put into use in several countries, in particular in Switzerland for the construction of the viaducts for the Simplon motorway. Each prefabricated voussoir weighs approximately 110 tons and is 42 ft. wide; there will be a total of 3,200 elements of this kind in all, stuck end to end. In order to obtain the necessary adhesiveness, the builders chose an epoxy resin specially designed for concrete, based on a Swiss formula and supplied by Ciba-Geigy Quimica Co. Ltd., at Sao Paulo. This adhesive, used for gluing the prefabricated elements together satisfies all mechanical and thermal requirements; since the laying of the first voussoirs last summer, the adhesive which is delivered to the site in pre-gauged packages, is submitted to the most search-

ing checks at each stage of advance of the work.

## SWISS SNOW-PLOUGHS FOR SOUTHERN ITALY

Rolba Co. Ltd. (Zurich, Switzerland), which specializes in the manufacture of snow-clearing machinery, and Flug- und Fahrzeugwerke Co. Ltd., Altenrhein (St. Gall, Switzerland) have just delivered 3 large machines to the Italian railway company Ferrovie Calabro Lucane. These self-propelled snow ploughs can plough through walls of snow 8 ft. high over a width of 11 ft. and project the snow to a distance of over 115 ft. The total installed power of each of these ploughs is about 600 h.p.

## INTERNATIONAL ROLE OF THE SWISS ELECTRICAL INDUSTRY

In the construction of electrical machinery and appliances, Switzerland plays an important role, even on the international level; according to statistics issued by UNO, this country comes 11th with 2.5% of the total world exports. In certain fields, its position is even considerably stronger. An OECD survey based on the power of the machinery exported indicates as Switzerland's average share of world exports for the years 1965 to 1969, the following figures: hydro-alternators and hydraulic turbines, 12% each; steam turbines, 17%; turbo-alternators, 14.5% and gas turbines, 9%. In Switzerland, this industrial sector has some 50,000 employees, including those working in related fields like telecommunication technique or cableworks. The manufacturing programme is a very large one. A few concerns manufacture machinery for the production of electricity (turbines and generators), others specialize in the construction of transformers and, in particular, high and low voltage coupling equipment. In the sector of circuit-breakers and measuring transformers for very high voltages, as in the field of electric meters, Switzerland even takes the very first place on the international level. In view of the fact that on

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an average 70% of the electrical machinery and appliances made in Switzerland is exported, the value of the total output in 1972 can be estimated to be in the neighbourhood of 3 billion francs.

## TWO BILLION FRANCS FOR RESEARCH AND DEVELOPMENT

In 1969, the Swiss private economy spent a total of 1,684 million francs on research and development, of which 1,243 million in the country itself. These figures are taken from a survey carried out by the Directorate of the Swiss Union of Trade and Industry; if they are compared with the results of a similar survey carried out in 1964-65, one notices that the amount spent by industry on research and development doubled practically in the 5 years under consideration. This trend, to which the different economic sectors of the country have contributed to unequal extents, reflects the efforts made by private economy to step up its output and and strengthen its competitiveness. Private enterprise, which finances all its research and development work itself by setting aside a sum equivalent to roughly 2.1% of Switzerland's gross national product, occupies a unique place in the world from this respect. In view of the fact that it has been estimated that expenditure of private enterprise represents 80% of Switzerland's total expenditure on research and development, it can be deduced that the latter amounted to some 2.1 billion francs in 1969.

## SWISS CARPET INDUSTRY BOOM

Carpets are growing more and more

today; they are used increasingly not only in private homes but also in administrative buildings, hotels, means of transport, etc. It has been calculated that, on an average, each Swiss citizen spends over one hundred francs a year on the purchase of carpeting. For a short while now home production has been covering a large proportion of the demand in Switzerland. While in 1972, imports of carpets totalled 261 million Swiss francs in value, 169 million of which was accounted for by machine-made carpets

and 92 million by Oriental hand-knitted carpets, the turnover of the Swiss carpet industry was valued at 150 million francs. Today, the Swiss carpet industry is one of the branches of the textile industry with the highest rates of growth. Whereas output amounted to only 1,748 tons in 1959, it has increased to 14,508 tons in 1971. This magnificent increase is all the more gratifying as this industry comes up against very keen international competition.

# TOURIST NEWS

## Made to measure holidays in Eastern Switzerland

The Tourist Office for Eastern Switzerland, St. Gall has come up with a new idea for in-expensive holidays. The guest selects the place with the help of the free travel literature, states his preference for full or half board, the dates, and number of persons. The Tourist Office will then find the suitable hotel, reserve the accommodation and submit a detailed statement. The arrangement is then formally confirmed by returning the respective form. Payment is made direct to the Hotel. The cost for half-board is between Fr. 24 and Fr. 26 per person per day or Fr. 28 and Fr. 32 respectively for full board.

The scheme is ideally suited for combining with "Hobby" holidays for a large variety of sports i.e. Tennis, Golf, Driving, Flying, Gliding, Gymnastics, Hiking, Minigolf, Horseriding, Fishing,

Sailing, Swimming, Water Skiing, also tuition in Primitive Art Drawing and Alphorn blowing.

Travel Agents are also invited to take advantage of the scheme.

For further information please write to:—

Tourist Office for North-Eastern Switzerland,  
Verkehrsbuero,  
9001 St. Gall/Switzerland.

## Holiday language courses and centres in Switzerland 1973

The brochure "Holiday Language Courses and Centres in Switzerland" for 1973 has just been issued by the Swiss National Tourist Office in three languages. It contains information on language courses at universities, private and public schools as well as holiday camps and other holiday courses. Copies are obtainable, free of charge from Swiss National



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