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INDUSTRIAL RESEARCH IN SWITZERLAND

By
Eduard Fueter

Switzerland is one of the most highly industrialised countries in the world. Its products compete successfully on all world markets, and the little country itself enjoys a high standard of living, although it has practically no raw materials. What, then, is the basis of this "economic miracle"?

In a highly informative study "Switzerland and Industrial Research", Prof. R. S. Edwards, who has specialised in problems of industrial organisation at the University of London, took up this very question a few years ago. He proceeded from the fact that Great Britain has to find those forms of industrial activity that offer the greatest possible chances of success. In his opinion, the U.S.A. is hardly suitable as a model, since that vast country possesses an extraordinary wealth of raw materials and an equally gigantic internal market; therefore the U.S.A. does not depend in any vital way on the export of industrial products. He then has this to say: "For guidance on this, it is necessary, instead, to examine the experience and behaviour of countries which sustain their people largely by the sale of manufactured products abroad. Switzerland is the best example."

Now then, what actually goes to make up the Swiss "solution" to the problem? Prof. Edwards himself warns against any simplification and stresses that the success of the Swiss high-quality industries rests on a convergence of many factors, or to put it in other words, that the union of various kinds of endeavour leads to success. It is impossible to mention all of them in this brief study. Some fundamental facts, however, can be referred to, though we shall have to extend the scope of the argument beyond what Prof. Edwards was talking about.

The first cause for the success of the Swiss was their will to work hard. This was occasioned no doubt by lack of raw materials and shortage of foodstuffs over the generations. In the last few decades, the rapid progress of scientific research in the service of industry has become a very important factor too. It has helped to bring about a silent revolution in the production process, whereas formerly it was thought that vocational efficiency and technical skill alone were decisive factors. The modern formula: *Quality plus Research* dates only from about 1930. In general, this formula means a combination of industrial research leading to pioneer achievements and a high level of mechanical and manual workmanship.

To carry on such research, private enterprise spend even larger sums of money in their own laboratories, experimental stations, plants for testing and developing new materials, etc. The amount spent may seem rather modest

if you compare them with American figures. Nevertheless, their utility is considerable, because the Swiss lay great emphasis on "rational" research. Even in the planning stage the economy factor is given careful attention. In spite of this evident handicap, there is no lack of boldness and initiative. A convincing proof of this is what happens in the Swiss chemical and pharmaceutical industry, which considers the outcome very satisfactory if 500 experimental tests produce two technically or industrially useful results. Other prerequisites for high-quality planning and production are: a high level of general and technical education, provided by a good system of elementary and secondary schools, technical schools, universities and vocational and scientific institutes, above all, the Swiss Federal Institute of Technology in Zurich; great importance also attaches to the wise use of licences, i.e., either assumption of promising licences or, much more frequently, the turning over of discoveries to appropriate foreign concerns via licence agreements. Also important is the good spirit of co-operation in Switzerland among industrial management people, engineers, technicians and workers, and also that existing between industrial researchers and those engaged in pure scientific work at the Universities. This co-operation is more easily achieved in Switzerland than in larger countries, as most Swiss firms are small or merely of medium size.

Along with the general principles described above, there are a good many special considerations which have to be mentioned. In research as well as in production, private firms will not allow themselves to be beaten, not even by American competition, not in the lines of production they have once marked out for themselves. Their struggle for mere existence is often a very hard one. Wherever the Swiss have been able to achieve success, two factors have proved helpful to them. The first is intelligent use of construction types and styles which have stood the test of experience and practice. The second is careful study of the varying needs and wishes of clients in foreign countries. The satisfaction of clients is considered more important than standing orders or mass production. This conception is confronting the manufacturing industries with another series of problems. They are pioneering not so much in order to make great scientific discoveries as to produce improvements on details. Sometimes they will combine research, experiments and tricks. Although the above-mentioned "methods" led to outstanding successes up to 1964 in the export sector and in the country itself. It must be noted, however, that there is a growing sense of uneasiness with many industrialists

and technical men regarding the future. The fear is mounting that in many vital new branches of industrial production — nuclear and space engineering, transistors and possibly biochemical production as well — the Swiss are no longer able to cope with the massive competition from foreign large-scale concerns, in either the capital or the labour sector. It is also feared that a negative influence will be exerted by the outward migration of qualified Swiss personnel. For this reason, an appeal is being made for government aid, which has hitherto been lacking, and for intensified collaboration within industry. The latter has been greatly promoted spontaneously by national or international co-operation among research and development bodies attached to private firms in similar lines of industry, management being kept strictly separated. Also, the sale of licences, etc., was greatly stepped up, in some cases through the agency of licence-and-patent-exploitation companies. Also, within the strictly private sector, there has been some development of commission research and a promotion of joint laboratories, e.g., in the watch industry. Mention should also be made of government and private testing of materials. Finally, the greatest attention has recently been devoted by Swiss industry to automation and rationalisation. It should be borne in mind that 30–38% of industrial workers and office employees, engineers and technicians come from abroad. Internal rationalisation within firms has scored notable successes even in small-scale enterprises. The employment of computers and other control systems has been so much increased that an international study has shown that Switzerland has now moved into second place, i.e., it is outranked only by the U.S.A. Nevertheless, all are agreed that priority in the competitive struggle continues to be a challenge to enterprise and engineers, implemented by concerted research, development and construction projects.

Along with increased efforts for “Research and Development”, the Swiss Federal Council beginning of 1965 decided to institute a scientific council of thirteen men, representatives of universities, industry and Government, Cantons respectively. One of the main tasks of this new body consists in working out an overall survey — in so far as it does not yet exist — covering the work done by academic, industrial and governmental research laboratories and by the international joint research centres. This body intends to submit proposals for further development and possible intensified co-ordination to the top authorities of the country. As consulting body to the Federal Council the scientific council in its proposals should consider all aspects of a scientific, economic, financial and political nature. It is also entitled to consult experts on the matter.

These summary remarks are far from exhausting the subject. We ought as well to enlarge on the importance of good management and personal leadership. We could also go into the questions of general commercial policy, sound government, and social harmony. Industrial research must not be developed for narrow-minded or selfish interests. It must keep in close touch with basic science. The study of the foundations of science as well as scientific research must be able to rely on the assistance of flourishing universities, a uniformly high level of civilisation, all-round prosperity, and on a sufficient amount of wealth to make possible investments for research in all directions.

(“Pro Helvetia” Foundation.)

SWITZERLAND AND THE WAR IN VIETNAM

In answer to a question in Parliament, the Federal Council stated that there was no question of appointing a Swiss Ambassador in Saigon or to take up diplomatic relations with the Democratic Republic of Vietnam. In 1926, the Federal Council opened a Consulate in Saigon in, at that time French Indo-China, for the protection of the Swiss resident there. In 1958, due to the resignation of the Consul, the Federal Council had to ask for an exequatur for a professional Consul-General. Vietnam considered this as recognition, and Switzerland's position has not been altered since.

At a meeting on 4th June of the Swiss Council for Peace, Minister Thalmann, Chief of the Section for International Organisations in the Federal Political Department, declared that Switzerland had already made several efforts to mediate in the Vietnam Conflict, efforts which were not known to the public. One of the main reasons why no mediation seemed to be possible at the moment, was that neither Red China nor the Vietcongs were members of UNO. The Federal Council would use every chance to mediate.

There have been various actions of protest against the war in Vietnam. Early in the year, a group of 140 teachers from Neuchâtel and nearly 400 from the whole of Switzerland published resolutions to which teachers in Basle replied with a statement that Spitteler's famous speech in the New Helvetic Society in 1914, in which he defined the “Swiss Point of View”, should be remembered today. They appealed to the teachers to prove their adherence to Spitteler's “Schweizer Standpunkt” by taking a Red Cross *Patenschaft*.

In April, a group of 92 politicians, university professors, Army officers and other personalities mainly from the German-speaking part of Switzerland, deplored in a statement to the Swiss people that events in Vietnam were used as propaganda. This had been done in particular by a recently formed “Committee for Information on the Vietnam War”; its supporters were to a large degree committed to Communist ideologies. The statement defended the Swiss Press and Radio which had at all times tried to be fair and conscientious.

The above-mentioned committee in Zurich did not receive permission by the Municipal Council to hold exhibitions on the war on Zurich public ground. The Committee considers this as a one-sided political decision. In the Commune Council, a proposal has been made by a member that some ground should be permanently put at the disposal of political information shows, and that a “Speakers' Corner” like in London might be considered.

Early in May, a number of university professors, teachers and writers in Geneva protested strongly against the American war in Vietnam. Mr. H. J. Kellermann, American *Chargé d'Affaires ad interim* replied as the representative of the American Government. He doubted that the Geneva protest was a true mirror of what the Swiss people and members of the Swiss universities really felt. He thought it sad that the true aim of the American stand in Vietnam and the tremendous sacrifices were not even understood by a people whose freedom and safety was being defended by the U.S.A. and her Allies. Mr. Kellermann also gave an address in Berne on 24th May (Swiss-American Society), in which he described the complicated historical background of the war.

A Swiss Red Cross team of eleven left for South Vietnam in April, and the Federal Council has taken over a large part of the cost. The leader is Dr. P. Stueckel-