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THE SWISS HOROLOGICAL INDUSTRY.

We have much pleasure to publish herewith an address given to the British Horological Institute by
MR. O. ROHN.

Geographical position — Economical necessity.

It is not a coincidence that Britain leads the world in the Shipbuilding Industry. — In the first place, it was Britain's geographical position, and secondly, a pressing economic necessity that demanded communications with the Continent, and hence with the whole World. This created the Industry, its Success, the Seafarers, and their Tradition.

The question is often asked — Why is Switzerland leading in the field of Horological production. The answer is to a large extent the same as for the British Shipbuilding. Geographical suitability and a pressing economic necessity. The Cradle of Swiss watchmaking was in Geneva about the year 1550. It flourished largely as a means to an end for the already highly developed Art of Goldsmithing and decorative Enamelling on precious metals. Many were true Artists and created from the very start a tradition for beauty in ornamentation and mechanism.

Soon after the introduction of watchmaking into Geneva, we find the first signs of emigration to the Jura Valleys of Neuchâtel, which was eventually to become the home of the Industry. The bright winter days, the crystal clear atmosphere, are characteristics of the Jura climate. Although the valleys seem at first sight inaccessible, they are nevertheless centrally situated as far as road communications are concerned. These lead already in the 16th Century to Commercial centres like Paris, Strasbourg, Munich and Vienna. In all these centres the Neuchâtel clock makers already had their connections. We see then, that from a climatical, geographical, as well as commercial point of view the Jura was from the start in a favourable position. The sparse, windswept ranges of the Jura could not produce enough in agriculture to keep a rising population. An Industry requiring only a minimum of raw materials, but representing the largest part in its ultimate value in labour cost became the pressing economic necessity for the region. The establishment of the Watch industry subsequently proved a happy choice. The absence of strict professional regulations helped the development, especially in the Le Locle and La Chaux-de-Fonds districts.

Technical Division of Work.

DANIEL JEAN RICHARD, 1672-1741, the first outstanding personality linked with the young industry, is said to have founded the Manufacture on a division of work principle. This system persists to this day, and it is largely due to this step that the industry made rapid progress and was able to maintain itself throughout the coming years. It is an interesting fact that only 15 years after Jean-Richard's death, the valleys around La Sagne, his birthplace, produced over 15,000 watches per annum. Of course, the well-worn joke that the Jura Farmers made hay in summer and watches in winter might have had some foundation in those days. Early in the life of the watch industry in Switzerland, it was realized that for one Watchmaker to make a watch entirely by himself offered greater technical inconveniences than advantages. Many of us deplore the passing of the old all-round craftsman, but when we

look for production and make the article available to the broad masses, we must admit that these Pioneers of the industry were guided by the same principle as is applicable to modern industry to-day.

In the middle of the 18th Century, watchmaking in the Jura already counted 15 well defined horological professions. Many were local or even family undertakings. The technical division of work has caused a complete transformation of methods in manufacture. It encouraged continual mechanization and improved accuracy of component parts. It is safe to say that the Horological Industry in Switzerland never would have known the remarkable development had it not been able to count on the highly skilled specialist in the manufacture of each and every component part.

Last, but not least, the Precision Machine industry worked hand in hand with the Horological Industry. Their resource and skill were at the disposal of the Watch Manufacturers, and a happy for both sides beneficial collaboration resulted and encouraged the building of specialized and perfected machinery for all branches.

The expansion of the Watchmaking industry followed strictly the West and East curve of the Jura Mountain Chain through the Cantons of Neuchâtel, Berne, Soleure, Bâle and Schaffhouse. Several attempts have been made to establish Factories elsewhere, but with little success. It seems, therefore, that there is a lot in the traditional development of an industry succeeding best in its "natural" surroundings. Step by step, as the industry developed and expanded, so the Factories for machines and other complementary supplies sprang up, along the broad

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line of development mentioned earlier. A compact store of skill and craftsmanship was built up through the years, forming itself into a tradition.

Difficulties of Exports.

It must, however, not be assumed that the watch industry knew only sunny hours — indeed not. There were many dark and stormy days in the annals of its history. Exporting 95% of its products, it was naturally dependant on the state of the World's markets. In the days before the close of the 19th Century, Britain and her Empire were Switzerland's best customer. Her Colonial expansion was a real boon to the development of Swiss watchmaking. The turning away of the World from Free Trade marked the end of an epoch for Swiss Watchmaking. Many countries thereafter pursued a policy of Protectionism and Trade barriers. Quickly alternating booms and depressions created havoc in the Industry. In later years, some countries put a high tariff on complete watches, whilst a lower one was charged for part-assembled movements and component parts. This undermined the export of complete articles, with attending danger of wholesale emigration of skilled labour, sale of processes and machinery. During the years of the first World War, the industry had expanded tremendously and the production increased accordingly. The year 1922 saw a very severe depression and consequent over-production, with all the attending ills only too well known. Unemployment, failures of Factories, local Banks, was the grim picture of those days. The Aid of the Federal Government had to be sought to meet the ever-increasing unemployment bill.

Horological Organisations.

Gradually Export figures improved again up to 1929, when they reached 306 million francs. Luckily, ever since the slump in 1922, Trade Organisation was in the hands of energetic and capable men. The F.H., or Federation of Swiss Watch Manufacturers already existed at the end of the 19th Century, but it was only in 1924 that it assumed the leadership through a central body composed of various Cantonal and regional Associations.

The Union of Allied Horological Component Parts Manufacturers — UBAH — was founded in 1927, in the form of a trust.

Towards the close of the same year, the Ebauches S.A. was founded, controlling the larger part of the Rough Movement Manufacturer, again assuming the status of a trust.

Here we have now the three important sections of Watch-Manufacturers well organised, and the two latter ones arranged in a trust. An agreement to limit the export of part assembled watches, component parts, and ebauches, as well as a minimum tariff for these was established. This should have favoured the export of complete watches and movements and call a halt to the emigration of the industry across the Frontiers. The attempt was only partly successful, because there were still many so-called dissident firms outside the Convention, who continued the same bad old ways.

The convention had been given a trial for two years, and was found workable, provided it could be given the necessary authority and status. The Associations therefore approached the Government for support of the scheme for a Superholding Company to bring the three interested groups under one roof, and make the Convention binding on the whole of the Industry. This was granted by Federal decree, the Government themselves taking up six-sixteenths of the Share capital of the Société Général d'Horlogerie Suisse S.A., or ASUAG. Ten-sixteenths are held by the Industry and the Banks.

The most remarkable fact emerges that through this action the Watch Industry became a national Industry, but not a nationalized one.

From the year 1929, matters became more orderly in the Horological Industry, and it was obvious that the Convention was creating internal resilience as well as an external solidarity, lacking for so long. It could not, however, prevent the occurrence of the blackest year for Horological exports in 1932; these fell to 85 million francs, or just over one-third of the year 1929. It would never have been possible to keep the Industry together, had it not been for the Convention. The foolish scramble of 1922 would have been repeated with similar disastrous results. The Organisation so laboriously and diligently built during the years of comparative prosperity stood the strain and stress. With the alignment of the Swiss Franc to the other revalued currencies of the World, exports gradually increased again.

The heart of the Watch Manufacturing Organisation is the Swiss Chamber of Horology in La Chaux-de-Fonds. Its function is to co-ordinate the activities of the various branch Associations and Interests. It is the mouthpiece of the industry as a whole, vis-à-vis the Federal Office of Public Economy. The quota sys-

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Progress — Technical and Educational.

So far I have spoken only of the growth and structure of the Industry's Organisations, and now I would like to touch on some technical matters. I preface this with a recent achievement in the field of accuracy. At the Neuchâtel Observatory a watch with a 34mm. (15 line) movement was tested over a period of 45 days in varying temperatures and positions. Its deviation was less than one second — in fact, the average deviation was 9/100th of a second over the whole of the test.

In the last few years, technical progress has been made largely in improved timekeeping under various temperatures and general dependability. As you know, the orthodox lay-out has been retained, but progress has been made in perfected component parts. This is especially true of the Balance wheel and Hairspring. Glucydur and Beryllium Balance wheels, Nivarox Hairsprings, together with various systems of shock-absorbing on the Balance pivots are now more the rule than the exception with any good 15-jewelled lever watch. Centre-second movements have now the direct wheel super-imposed over the Centre wheel, by the method of known as "returning."

Automatic watches have become very popular in the last year or so, and Manufacturers think there is a great future, provided some of the inherent weaknesses of Automatics can be overcome. A great number of gents wristlets are of the Waterproof type, and I know many of you would welcome the continuation of this trend, instead of the return of the flimsy gold cases which offer little protection for the movement.

As regards the introduction of machines during the last few years — many factories have been practically re-equipped with the latest. In the middle of the 18th Century, the first lathes were used, and it is a far cry from those and the latest Bechler, Tornos and Petermann Automatics with multiple cutters. New milling machines which work on a pantograph system are now usual. The Pattern is cut 100 times enlarged, and a feeler guide directs milling of the actual size part. The latest multiple piercing and drilling machines employ a similar system, but are on a turntable with feeler-rod-principle.

The Hauser Opticle Comparators enlarge manufactured parts to 100 times the original size, and so show up any discrepancy when the original drawing is super-imposed. Increasing use is made of the physio-psychological test and motion study. Machines are then designed to save finger, arm and body travel, thus cutting fatigue to a minimum. The use of air-pressure for activating smaller machines ensures smoother, more elastic and, above all, noiseless operation.

With all this, it is natural that the educational side has not been neglected. We find well equipped Watchmakers' schools in every important Centre, with efficient staff to guide the young generation of Watchmakers and technicians. The higher school of Horological studies is in Le Locle. Recently, a magnificent new Central Research Laboratory has been opened in Neuchâtel.

Statistics.

I have already touched on various export figures, but would like to supplement these with the latest

available for 1946. Total exports for all Horological merchandise last year was a new high record with 605 million francs, or about 35½ million £ sterling. The next important industry is almost 200 million below that figure, the Machine Industry, with an export of 418 million. Watch exports account for one-quarter of Switzerland's total. The biggest customer is the U.S.A., followed at some distance by the South American group of countries. Both Britain and the European countries have given place to these. This continual development is viewed with some grave anxiety in Switzerland.

Whilst on the subject of statistics, the employment figures and other information might be interesting to you. The Horological industry employs 50,000 operatives. It consists of approximately 2,500 enterprises of a small and medium kind. A factory employing over 1,000 workpeople is considered a large one. It would probably be of the kind that manufacture the Ebauches and some of the component parts for their own use and finish the watch under one roof. There are only about eight factories of importance in this category. Switzerland produces 75% of the World's production in watches. During the War it was 95%.

The Watch Industry's Position in the Swiss National Economy.

During the War, it was most forcibly brought home to every Swiss how important Horological exports were to keep their economy intact. It was and still is the main-prop of our trade. Many of the other traditional export-industries were prevented by the blockade or counter-blockade, and more through lack

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of raw materials, to contribute to the National Economy. The Watch industry with some improvisation could keep going as it uses only small quantities of raw materials, and with the proceeds, it was possible to obtain the most necessary materials and foodstuffs. Without the Watch industry, the Swiss Internal Economy, as well as the balances abroad would have presented quite a different picture. Small wonder, then, that most Swiss take a personal interest in the Industry to-day, and considers it his privilege to criticise the actions of the Industry. This reminds me of a Cartoon which appeared at the time of the publication of the Anglo-Swiss Agreement on the leasing of machines and sale of components in one of the papers not connected with the industry. A Swiss watchmaker is depicted, sitting on a branch of a tree, and is occupied in sawing the branch off between himself and the trunk. The branch is labelled:— "Export of Swiss watch machines to Britain." Luckily, we have men at the helm who can look beyond the immediate future, and I think the Communiqué of the Swiss Federal Council will prove that to you. It runs as follows:—

"The Federal Council approves the Agreement with the conviction that it will be more advantageous for Switzerland ultimately if this question would lead to an understanding and a collaboration between the two countries, than to let England develop the industry herself, which in any case would in time be done without our help."

It is fully realized that Britain must have a nucleus of a Horological Industry for her national well-being, and I do believe that my countrymen have appreciated and accepted that view-point.

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