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# THE SWISS WATCH INDUSTRY TODAY

Mr Othmar Rohn, CMBHI, Consultant for the U.K. to the Fédération Horlogère Suisse in Biel, recently gave a talk on the Swiss watch industry to the Nouvelle Société Helvétique in London. He began by retracing the industry's history to the fifteenth century.

"Geneva can rightly be called the place where the watch industry was gently rocked into being in the fourteenth century. Flourishing crafts such as gold and silversmiths, enamellers and minters were the backbone of the Genevan precious metal workers who had established lucrative trade relations with many foreign countries. But, purely local events provided the impetus to a more pronounced shift of interest to actual watchmaking as against what could perhaps be termed before as "Jewellery telling the time". In 1541, after the Reformation, CALVIN had the General Council of Geneva approve edicts regulating the population's way of living. Wearing jewellery was forbidden.

"In fact, in 1566 the great Reformer had a further edict promulgated, which in fact had the effect of almost eliminating goldsmiths. During the same period, foreign refugees from France, Burgundy and Flanders, driven from their homes because of the Reformation, found a haven in Geneva where they established themselves as clock and watchmakers.

"The variety of their approach accounted for the great diversity of their handicraft and gave the new industry the impetus it needed. The Genevan Goldsmiths, having lost their principal activity of making religious ornaments, vessels and jewellery found a new outlet for their talent in watchmaking.

"By the end of the sixteenth century Geneva already had a reputation for excellence. There were then already enough watchmakers to form a Guild — the first of its kind in the World.

"The demand for their watches could no longer be met and methods had to be devised to increase production. For each watchmaker to produce all the various parts individually was both slow and expensive and so the SPECIALIST producer — based on what is now the

firmly established principle of DIVISION of LABOUR — came into being.

"The specialist craftsman in the remote Jura valleys became the lynch-pin in this development and the watch industry established itself and expanded rapidly.

"Names like Daniel Jean-Richard, Pierre Jaquet-Droz, Abram-Louis Perrelet spring to mind. In only two generations Le Locle and La Chaux-de-Fonds alone boasted many hundreds of watchmakers turning out 15,000 watches each year.

"The demand grew apace and new production methods were evolved and wholeheartedly accepted by Switzerland's watchmakers. This period also saw the establishment of the precision tool and machine industry which developed side by side with the manufacture of watches. Standardisation was the key-word of those days and led not only to greater production but to astonishing precision at economic prices.

"For example, one Swiss Canton increased its production from 130,000 to 500,000 watches between 1818 and 1870. This remarkable growth-industry became, through its products, the envy of the world."

The speaker then gave some statistics:

"World production of watches in 1973 was a total of 208.5 million units. Of these Switzerland produced 84.5 m.

Japan: 28 m  
USSR: 26 m  
USA: 22.2 m  
France: 16 m  
W. Germany: 10 m  
Others: 22 m estimated.

"In considering these figures the percentage of EXPORTS from each Country show a most interesting comparison:—

Switzerland: 97%  
USA: 1%  
Japan: 59%  
France: 53%

"Small wonder therefore that an Industry with this sort of record of export suffers from time to time when there is a recession in one or most parts of the world. The strength of our export performance is the diversity of the

product just as it was in the early Genevan days of the sixteenth century. By unceasing effort and resourcefulness out of 16 watches exported by all world exporters, the share is as follows:— 10 by Switzerland, 2 by Japan, 2 by USSR, 1 by France and 0.59 by West Germany."

Mr Rohn next spoke on the labour force and general structure of the industry.

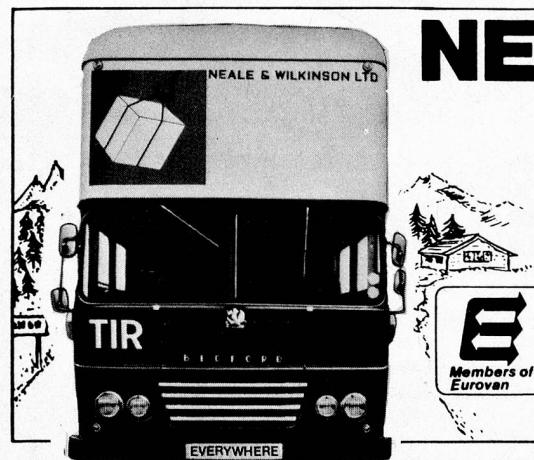
"In 1952 — 74,500 people made 33.5 million watches in Switzerland. Twenty years later 75,500 workers, barely 1,000 more, accounted for the 76 million produced. Achieving this result required energetic rationalisation of production methods. Mechanisation, automation and computerisation even as far as the assembly is concerned have improved profitability and created new job categories at the skilled labour level.

"Total Export value of watches and watch-movements, clocks and parts reached Sw.Fr.2,820 millions. United Kingdom imports amounted to 8,283,000 units and a value in Sw.Fr.185,438,000."

## The product in evolution

"Mechanical watches have benefited from energetic development particularly in the fields of higher precision, numerous added functions — day-date, alarm watches, chronographs, but especially in the realm of automatic winding watches. As regards their constructional and working principles automatic or self-winding are the most advanced designs of mechanical watchmaking. These are sometimes described as the nearest solution to perpetual motion. Since its invention 150 years ago, it has taken all this time to bring it to perfection.

"To some extent this was due to a step-by-step improvement of materials that became available over the years. The advantage of the self-winding watch resides in their movements' auxiliary mechanism which winds the mainspring and keeps its tension constant. This results in a remarkable consistency of the time-keeping rate and as production runs increased and the recent addition of high-frequency escapement assembly was



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added, the industry is obtaining truly remarkable results.

"Conservative consumer reactions and fears of various manufacturers regarding the commercial success of the new designs hampered their introduction in the world's markets. Only when faced with the competition from new products did sales definitely increase again and did their market position become secure."

The speaker then went to talk about electricity in watches.

"During the time as automatic watches were becoming accepted in the world's markets, a different approach to the problem of improving rate stability (time-keeping) and doing away with the mainspring met with success. Using miniature power-cells, technology developed (during the war) watch movements equipped with compact energy sources. These small batteries supplied energy directly to the regulating organs which in this way acquired the function of a motor along with its role as a regulator. Watches with electric contacts had become a reality. During the late fifties, in parallel with the developments of electronics, efforts were made to improve purely electric-mechanical watches by introducing transistorized circuits. In the history of horological technology, the generic name of this type of time-keepers is 'first generation electronic watches.'

"In 1957, a Swiss horological engineer set out to accomplish a major step in the replacement of traditional technology with a new scientific development. He designed the first

electronic wristwatch by substituting an electronically sustained tuning fork vibrating many hundreds of times a second for the balance and spring. (Hetzel). The considerable increase in frequency obtained with this resonator gave impressive accuracy. As the patents and designs became the property of one Company (BULOVA of America) who had contracted with the Swiss designer for its development, the distribution and market penetration remained relatively limited for a long time. In this particular instance it is agreed by our industry now that it would have been prudent to acquire Mr. Hetzel's invention at whatever price demanded, than to let it go to an American firm, although the American firm produced the watch in Switzerland subsequently. Ebauches S.A., the largest producers of horological components and movement blanks, obtained a licensing agreement later, but in the meantime the Piezo-electric system of quartz-controlled vibrations many times that of the second generation tuning-fork watches - had become a marketing reality."

#### The Quartz Generation

"The working principle of quartz watches has been known for a long time; the first clock of this type was built in 1930. The principle is the rapid vibration (generally now 32,768) by an electrically excited quartz rod which is used as the time basis. This phenomenon is known as PIEZO-ELECTRICITY. With frequencies of many thousands of cycles per

second (1 Hertz = 1 oscillation per second) are possible. As the number of oscillations plays a fundamental role in the rate stability of horological systems, quartz provided the most precise time standard available until atomic clocks were developed in 1947.

"Because of the size of their frequency dividers, early technical quartz clocks were huge, and many years passed before developments could lead to a reduction in their dimensions. Minaturizing such instruments sufficiently to fit into a few cubic centimetres required such a major effort that the Swiss Watch Industry decided on a common approach. The Horological Electronic Centre (CEH) was thus set up in 1962. With this united effort the first watches of the THIRD generation - the quartz watch named BETA 21 - appeared in 1967. It was available in assembled module form to all members of the group interested manufacturers. A year later it shattered every precision record at the Neuchâtel Observatory's international contest. Some 20 models by various manufacturers reached the market by 1970. Their design varies considerably in quartz frequency, type of display system, type of circuit used.

"As regards the last truly remarkable solutions grouping many hundreds of transistors on a surface of a few square millimetres. A radio only contains about ten transistors by comparison. The frequency dividers bring the quartz oscillations to a mechanically practical level for traditional - known as analogue indications (dial and hands) for

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example from 32,768 to one hertz per second in a number of recent models."

Mr Rohn then went on to explain the all-electric solid state watch.

"Solid state is the term used for completely electronic instruments having no moving parts whatsoever. In 1970, an American Company showed the prototype of the watch displaying the time by electro-luminescent diodes. This was the signal for most of the large USA concerns who had been contractors to the APOLLO SPACE PROGRAMME over many years and received billions of dollars worth of contracts. The first consumer item they started to produce in fantastic quantities was the POCKET CALCULATOR. Prices started at first at around £100 and to-day they are being offered by many distributors of all sorts at just under ten pounds. Large concerns in the States such as Texas Instruments, Hughes Aircraft, National Semiconductors, AMI, Optel etc. entered the market, which was described as a most lucrative one with promises of a rich haul, describing the Swiss Watch Industry as a dead duck - were published by a host of marketing experts. The media was caught up in the 'DIGITAL FEVER'. Even the Swiss Press, in my opinion much to their shame, started hysterical articles blaming the Swiss Watch Industry for missing the boat as far as the solid state watch was concerned - especially the media East of a line of Berne. Not a very edifying spectacle to witness by a country that professes to the motto 'all for one and one for all'. Since the larger part of the watch industry is situated in the Western side of our country the uncalled-for criticism is especially unfortunate. I have tried to show earlier on in my address how vulnerable our industry is to world trading conditions owing to its 97 per cent export participation. I would therefore expect a more lenient attitude towards our difficulties when we face the effects of the over-valued Swiss Franc, a recession and a revolution of time-keeping initiated from outside. I was shocked and indeed hurt when I overheard the remark - that if the banks (who benefit so much by the heavy Swiss Franc) would foreclose on the Watch Industry today, they could own it by tomorrow. I suppose a few more millionaire's villas on Lake Zürich are a good swap for some watch-making wizard's cottages on Lake Neuchâtel.

"I am glad however that I can conclude on a happier note. The digital revolution from the USA is loosing its sting - so much heralded by the media across the Atlantic. The colossal drop in prices on the USA market from 200 dollars down to 20 has removed the glitter. We in our industry in Switzerland could not afford to lose that sort of money nor could we expect our clientèle the world over to accept such disastrous marketing methods.

"In conclusion I would say that there is a market for the solid state watch as there is for the Quartz Analogue generation - so let us hope that if there are fewer TICS and TOCS coming out of

Switzerland in future, the new types will hum in Swiss tune."

Mr Rohn then showed a modern film on the watch-making industry, and his animated discussion followed which

brought up some very pertinent and critical questions. The speaker answered them skilfully, and the President of the Society thanked him for a most interesting evening.

## Good prospects for Swissair

John Elliott, Swissair's press and public relations officer for the UK and Ireland, recently addressed one of the monthly meetings of the Swiss Mercantile Society in London. His theme was his airline's activities and objectives, in which John traced our airline's history along the following lines:

Founded in March 1931 through the merger of two air transport companies, Swissair can now look back on over 45 years of successful operation. Although styled the "national airline of Switzerland" in 1947, it is not nationalised; over 70 per cent of the share capital is in private hands. Less than 30 per cent is in the hands of federal, cantonal, municipal and other Swiss Public institutions.

In 1975, when most of the world's airlines made a loss, Swissair still managed to emerge from this difficult year with a net profit of 25 million francs, albeit with a reduced dividend.

The company has missed a dividend payment only once - in 1961. The main problems in 1975 were reduced traffic in Europe and on the North Atlantic especially in the first half of the year, and large revenue losses resulting from unfavourable exchange rates.

Swissair's fleet consists of two Boeing 747B Jumbo jets, eight long range DC-10-30s, six DC-8s and 30 short haul DC-9s (including eight of the newest DC-9 version, the DC-9-50). On order, for delivery next year, are one more DC-10 and two more DC-9-50s.

Swissair serves 88 cities in 61 countries. The network's recent expansion plans have tended to concentrate on Africa and the Gulf area.

Economies in manpower and improvements in operating efficiency have always been cornerstones of the company's commercial success. Swissair believes in inter-airline cooperation where it provides real benefits, such as the KSSU agreement under which KLM, SAS, Swissair and UTA have purchased and are operating identical aircraft and share the maintenance of the various aircraft types between them. Swissair maintains all its partners' DC-9 engines and DC-10 airframes.

Another move towards greater efficiency has been the introduction of computers.

As a commercial enterprise, Swissair aims to be independent, financially self-supporting and to fulfil a role in the Swiss economy.



At Swiss airports, Swissair now provides ultra-modern check-in facilities with its new computerised departure control system, providing full passenger information and automatically printed boarding cards.