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TECHNICAL ITEMS

Diving Chronometer

A watch factory in Geneva last year developed and marketed a new diving watch proving to be perfectly waterproof down to a depth of 2,000 feet. This new chronometer, the "Sea Dweller", is equipped with a special valve preventing water from slipping in the waterproof case but allowing helium to escape. This gas does not affect the movement, but can penetrate in diving watches during prolonged underwater periods and cause them to explode when surfacing.

The "Sea Dweller" is now a standard equipment of the 250 professional divers working for Comex, a Marseilles firm which is one of the two largest companies in the world specialising in underwater research and projects. This company successfully tested the watch during a series of experiments down to depths of 2,000 feet.

Swiss Turbines and Pumps for California

A Pelton turbine with a vertical axis and six injectors, together with its 1,370mm. diameter spherical valve, is to be installed in the Hydro-Electric Power Station at Devil Canyon. The power developed is 60 M.W. under a head of 414m. Two single-stage centrifugal pumps with vertical axis will be mounted in a separate pumping plant, each with a capacity of .8 cubic metres per second for a lift of 173m. The two plants form part of an aqueduct bringing water from northern to southern California. Orders for the delivery of these plants were placed by the Water Board of the State of California with Escher Wyss Company Limited, (Zurich) represented by Sulzer Brothers Incorporated, New York.

Millions Invested in the Protection of the Environment

The Swiss machinery and appliances industry has stepped up its anti-pollution investments during the past few years. A survey of 200 machine manufacturers showed that they had so far spent 96 million francs in building plants to reduce environmental nuisances. These firms have a further 41.5 million francs of investments planned for that purpose at the time of the survey. Running the existing plants already costs 31 million francs a year, 22 million of which for elimination of fumes and six million for water-purification. Investments of plant to reduce noise and vibration have so far amounted to 10 million francs and cost three million a year to run. Despite these achievements, more efforts will be required to bring decontamination and cleaning processes to a satisfactory level. The fact that technology in this field is still in its infancy complicates decisions by the industry. The question often arises whether it would not be wiser to modify

existing plant or install new anti-pollution equipment at a later stage, when the optimal technical solutions will have been found. The Swiss machinery industry considers that the results obtained so far in its fight against pollution are very satisfactory. A growing need is felt for some form of international standards as practices now vary from country to country and involve discrimination from the angle of completion.

New System for the Perpendicular Assembly of Plates

A Geneva firm has developed a combination of rivets called "SwissLok" designed for the perpendicular assembly of two plates of the same or different thickness. This simple new system eliminates the operations normally required to obtain perfectly parallel surfaces prior to anchoring the two plates together either by glueing, welding, riveting or screwing. Cost analyses show savings of 40 per cent over sheet metal screw jointing, 45 per cent over pop rivet jointing and 25 per cent over spot welding. The "SwissLok" system has been developed by the firm for the production of its ventilators, but is also applicable to many other fields of industry, such as the manufacture of refrigerators, metal furniture and articles for the car, aircraft and nautical industries.

Revolution in the Manufacture of Chocolate

The chocolate firm of Lindt and Sprungli, which a hundred years ago developed a revolutionary refining and homogenization machine essential to the production of good chocolate, has developed a new device drastically reducing the time needed for refining chocolate. The original process, which for many years had been a closely guarded secret, consisted in refining finished chocolate and cleaning it of bitter components towards the end of the manufacturing operations. The whole process lasted for 78 hours. The new system perfected in the firm's Kilchberg laboratories requires only 20 minutes and results in considerable savings in space and labour. It consists in refining cocoa at the early stages of chocolate manufacture. After roasting, the particles of cocoa go through the purifying apparatus which soaks them in an aqueous solution of carbohydrates — this has the property of fastening onto all the bitter residues of fermentation and rapidly dissolving them. Those unwanted components are then eliminated by evaporation. The cocoa is then refined and immediately possesses its good chocolate flavour. The new plant is manufactured by Buhler Brothers of Uzwil.

Swiss Textiles: 2.5 Billion Francs Exports

Switzerland exported 2.47 billion francs worth of textiles, including of clothing, during 1972. Exports to Common Market countries have fallen significantly and amount to 19 per cent of the total. Nearly half of textile exports were marketed in E.F.T.A. countries. Britain, which absorbs 19 per cent of exports, or 303.5 million francs, is Switzerland's biggest customer followed by Austria (16 per cent of 266.7 million francs) and West Germany (11 per cent or 174.9 million francs).

Record Dealings on Swiss Stock Exchange

1972 represents a landmark in the annals of the Swiss financial market. All records have been beaten on the three main stock exchanges of Zurich, Basle and Geneva. The Zurich stock exchange listed 228,325 quotations (201,596 in 1971) and transactions were valued at 74 billion francs, nearly 20 billion francs more than the previous year. Transactions totalled 14 billion francs in Basle. Such figures are not available for Geneva, but the stock exchange there listed 62,618 quotations.

Economic Statistics

According to an estimate, the different economic sectors have contributed as follows to Switzerland's gross domestic production in 1972: Primary sector (agriculture and forestry) five to six per cent, secondary sector (industry, craftwork, building) approximately 50 per cent, and tertiary sector (services) about 46 per cent.

Swiss industry employed 848,000 persons working for 11,295 concerns, 371 fewer than a year ago. A third of this labour force was foreign. Machine industry employs 259,000 persons, metallurgy 118,000 and chemicals 68,00. These three branches thus employ over half of the country's industrial labour force. Watchmaking employs 64,000 and textiles 58,00. Women account for 29 per cent of the workforce. 49,000 work in the machine industry, 43,000 in clothing, 32,000 in watchmaking and 27,000 in textiles. Thus women fill about three-quarters of the jobs of the clothing sector and about half in the tobacco, textile, watch and leather industries.

NUCLEAR POWER IN SWITZERLAND

Lucens dismantled

The Lucens experimental nuclear power station (the first in Switzerland) has been dismantled, and the caverns are now available for another suitable purpose. Lucens is about halfway between Lausanne and Berne.

It will be remembered that in January, 1969, this advanced prototype suffered a serious incident of the kind called "total loss of coolant". Neither the health of the operating crew nor that of the population was ever affected during or after the accident. All safety circuits performed as intended, so that for the most part contamination was kept inside the biological shield and parts of the moderator (heavy water) and control rod cooling circuits. The origin of the rupture of a single pressure tube lay in the contained fuel element. It was intended in any case to shut down the plant some time in 1970 or 1971. The incident can therefore be considered as an additional and very instructive experiment.

During the first few days it was possible to recover the heavy water. Later, this was purified so that more than 90 per cent of the original inventory could be sold. Then all fuel elements, excepting the defective one, were unloaded and reprocessed at Mol, Belgium. Before shipment, some of the fuel elements were inspected in hot cells at the Würenlingen research centre. Finally, the reactor structures were completely dismantled and the fragments of the defective fuel element carefully inspected. These operations were concluded within three years by a small crew of some 25 people, without anyone suffering injury or contamination. The amount of radioactive waste collected and placed into barrels and other containers is not large.

It is planned to transform the cavern and installations into a plant for conditioning and intermediate stor-

age of radioactive waste for Switzerland.

Operation of Beznau Units No. 1 and 2

Beznau Unit No. 1 is still operated at 75 per cent of its rated power level and with reduced primary system pressure and temperature. Beznau Unit No. 2 continues to show good operating record. The overall plant availability factor for the first nine months of commercial operation, starting 15th March, 1972, has been better than 80 per cent.

Mühleberg Nuclear Power Station Operation from October to December 1972

The last portion of the start-up phase of Mühleberg nuclear power station was successfully terminated in October with a 28-day run. Power levels varied between 50 and 100 per cent during this period. On 6th November, the plant was taken over by Bernische Kraftwerke AG from the builder (Brown Boveri/General Electric). Since then it has been operating most of the time at full power with an average availability of roughly 90 per cent.

Opposition to Kaiseraugst continues

As expected, the Government of the Canton of Aarau has taken up the appeal lodged by the Kaiseraugst Consortium against the rejection of its application for a construction permit by the Kaiseraugst Communal Council. The

decision, which will be reviewed by the Aarau Administrative Court, did not please the opponents of the project. A ruling by the Court can be anticipated this spring. The case is likely to be then referred to the Federal Court. This will further delay works on the proposed Kaiseraugst nuclear power plant. Last September, the project was brought up to date technically by choosing another General Electric reactor which would increase the power output from about 800 MW to 900 MW.

Nuclear Power Plant Project Gösgen-Däniken

The consortium brought together for preliminary studies in view of erecting a nuclear power station at Gösgen-Däniken has received tenders for completed plants by Asea-Atom, General Electric, Kraftwerke Union and Westinghouse. Since the offer by Kraftwerke Union (Siemens) for a power station with an output of 920 MW presented advantages, especially as far as prices and construction time were concerned, it was chosen at the 16th January, 1973, meeting of the Consortium.

A few days earlier, the Cantonal Government of Solothurn had approved the communal zoning plan for the site of the future plant, for which building permission has been granted by the communal authority. It is still possible, however, that opponents to the project will intervene at some higher level. The Consortium is nevertheless optimistic and went ahead with the formation of a new



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company, the "Kernkraftwerke Gösgen-Däniken AG", at the end of February, 1973. This company will represent the owners during construction and later operate the plant.

Leibstadt Nuclear Power Plant

After a long series of delays the project of a power plant at Leibstadt is finally on the way again. Three major developments helped this situation to come about last December. Planning permission was given by the Commune of Leibstadt, the contractor was chosen and application for a construction permit was submitted to the Commune. Although strong opposition to the project is expected, the positive attitude of the Commune of Leibstadt will help overcome difficulties standing in the way of final clearance to start works. Five tenders were received from Combustion Engineering/Brown Boveri, General Electric/Brown Boveri, Kraftwerke Union (2 bids), and Westinghouse. Final negotiations led to the choice of the Brown Boveri/General Electric Consortium with Brown Boveri as the leading partner offering a water reactor plant with a net output of 940 MW.

(Bulletin of the Embassy of Switzerland in Washington).

hotel of 30 rooms rising above Portman Square, just off Oxford Street. It was inaugurated in February 1971. Inter-Continental Hotel is one of the world's

most important hotel groups and is a wholly owned subsidiary of Pan Am. The Portman in London is also partly owned by BOAC.

LETTER FROM SWITZERLAND: THE BRITISH BEST KNOWN FOR THEIR STRIKES

by Gottfried Keller

Describing what the average Swiss thinks about Britain is more difficult than imagined at first thought. Generalisations are dangerous and can be as misleading as public opinion polls! Nevertheless, I have come to know a good many Swiss, some belonging to the educated classes, others exercising the profession of shopkeeper, hairdresser, garage attendant, handymen and other useful trades. In the following considerations, it is to those belonging to the second group that I refer to as "average Swiss" and not to those who listen to the B.B.C., read English newspapers, are in regular contact with English people and even travel to the United Kingdom from time to time.

Overall it strikes me forcibly how little the average Swiss — let us call him Hans Schmied — knows about Britain, about its institutions, its system of parliamentary democracy, its moral and political influence for good in the world and its many other positive aspects and achievements. What he does know is, unfortunately, about strikes, Carnaby Street and Kings Road, permissive society, crime in Soho and Northern Ireland. He also knows something about the Queen and Princess Anne since the latter's picture is in every cheap or not so cheap illustrated magazine which he glances through while waiting at the dentist's.

In other words, there is a yawning information gap about Britain. Those excellent despatches from London one finds in several Swiss papers seem to be written for — and read by — an elite all over the country, but regrettably few on the local level. What Hans Schmied in Kusnacht reads is neither the *Neue Zürcher Zeitung*, nor the *National Zeitung*, nor the *Bund*, but *Der Blick*, possibly the *Tagesanzeiger* and the *Zürich-Leu*, which is distributed free (living as it does from advertising) and is mainly concerned with local and regional affairs. It is true that Theo Haller is listened to widely on the radio and has a regular audience, but to create a favourable image of Britain in Switzerland he would have to broadcast more frequently. Lord Arran's name still occasionally crops up in conversations and it goes without saying that the noble peer has not endeared himself to the Swiss public, nor done much to create a favourable image of Britain.

I said last time that there was a

craze here for English names. Even villages suddenly put up road signs with the inscription "To the City". It also strikes one that English is invading the advertising columns of many newspapers. Whole adverts are sometimes written in English, which in a way is a compliment to that language, but single words or half-sentences in English are sometimes inserted in the German text. This can look atrociously silly. "Bars" of all kinds have cropped up in many towns. Apart from milk-bars, such weird things as "shoe bars", "jeans bars" and other miscreations have made their appearance.

Two English makes of cars seem to be in demand here: Rolls Royces and Jaguars. The former are for those who can afford fantastic prices, whereas that sleek Jaguar XJ 6 (or even 12 now) seems to have a definite snobbery value. I heard someone call it the "poor man's Rolls"!

Unfortunately, this letter cannot be written without stating that Hans Schmied just can't understand why Britain should have to suffer from all these strikes. Why, have I been asked several times, does the British Government not react more firmly and send in troops wherever a strike breaks out? And when I try to explain the social and psycho-political situation in Britain, and remind him that the bulk of British troops are anyway in Germany and Northern Ireland, Hans Schmied still fails to understand.

As a counter-argument, I ask him: Why does the Swiss Army not protect its Chief of Instruction, Colonel Hirsch? He was recently invited to give a lecture at Berne University after two anti-army conferences had been authorised and held there. But some left-wing students and, apparently, a mob of street demonstrators coming mainly from behind the Iron Curtain, created such an uproar that the lecture had to be abandoned.

The question here is the same as in the case of strike-breaking in Britain: Would it be wise to put in troops? Politics is still, after all, the art of the possible.

Talking of image-creation, it is perhaps not very fortunate that the *Forsyte Saga* should at present be holding Swiss T.V.-viewers spellbound. Excellent and beautifully got up as the serial is, with its marvellous acting, it does show the *Forsyte* clan, on the whole, as greedy money-makers, snobs and social-climbers.