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# TECHNICAL ITEMS

## HEATING YOUR HOME WITH THE SUN

A promising experiment in the use of solar energy has been conducted since last December at a villa at Pres-d'Orvin, a small village situated in the Jura mountains above Biel. The experiment proved that this villa of 2,500 square metre surface, its garage and its swimming pool of 250 cubic metre capacity could obtain 70 per cent of the heat required for living conditions in the heart of winter solely from the sun.

Even though the sun was absent for much of the time, the energy accumulated during sunny days in the swimming pool and a heat storage device constructed from a disused heating fuel tank was sufficient to replace over two-thirds of the conventional and costly fuels used for heating. The heat was conveyed by means of heat pumps which were themselves actuated by solar energy. The working principle of the heat pump relied on a "cold reservoir", easily found in the presence of ice and snow. From thermodynamic considerations, it was necessary to have cold and heat reservoirs existing side by side to increase water temperature to levels of about 60 degrees centigrade.

The equipment for heating the villa cost about 50,000 francs, some 15,000 of which were due to a great number of thermostats. The normal heating bill would have only amounted to 2,500 francs. The idea is thus still far from becoming a commercial proposition. But the technicians who planned the experiment claim that the high cost of equipment was due to it being specially made and non-commercialised. This particular experiment could therefore point to a real domestic use of the sun in the not so distant future.

## NEW GENERATION OF TIMERS

Based on a proven range of timers, a firm at Morat (Fribourg) has developed a new generation of timers; a precision timing relay with synchronous motor drive, and an electronic version.

These two ranges are complementary and provide optimal solutions for many different applications. Their miniaturisation results in considerable savings in weight and space.

This new generation of "Mini-Tempotac" timers also features a carefully studied design, in which not only the mounting dimensions but also the terminal arrangements are standardised.

Both ranges are available for wall-mounting (automobile standard) or flush-mounting (bezels of 48 x 48 and 72 x 72 mm).

The standard control voltage of 220 V with built-in 50/60 Hz frequency selector. The models with synchronous motor drive are available for ON-delay or OFF-delay, with variants for standstill or resetting in case of power failure.

They are equipped with six time ranges (min 3 sec, max 30 h), which may be selected before installation.

The electronic range is also available for ON-delay or OFF-delay. The heart of the system consists of an integrated timer circuit of high inference security.

All models in this series automatically reset in case of power failure; each unit is available with only one time scale: 1, 3, 10, 30 and 60 seconds. The range also includes wiping relays and impulsers.

## SAFETY ON AIRPORT RUNWAYS

A machine factory at Sissach (Basle) claims to be the first in the world to produce a machine for roughening concrete runways and removing the rubber deposits which represent a potential danger.

This miller is able to treat even the largest areas economically. As a result of its weight of over seven tons, it is capable of restoring an even roughness to surfaces, whatever their state at the time of treatment.

The layer of rubber left on runways by the wheels of aeroplanes is removed by beaters. At the same time, the surface is roughened without damaging or removing any part of it.

The technique used makes it impossible, because the surface is only scratched by the steel lamellae which cannot penetrate deeply.

The net capacity of the miller is about 900 m<sup>2</sup>/h. The process is purely mechanical and does not have any of the undesirable side-effects that occur when rubber deposit is removed by high-pressure jets of water or chemical products.

The machine is fitted with 12 individually adjustable drums, with specially designed lamellae.

It is towed along and powered by means of a drive shaft. This miller is equipped with an automatic system for raising and lowering the rotating drums, thus avoiding damaging or chipping the joins in the concrete runways of airports.

Its working width of 1,800 mm makes it the largest roughening machine in existence; working hours at airports are thus reduced to a minimum, with a corresponding considerable saving in upkeep costs.

Its use on concrete and asphalt surfaces has met with great success, in particular on the runways of Zurich-Kloten and Munich-Reim airports.

## SWISS FLOUR MILLS FOR ALGERIA

The Algerian National Semolina and Pasta Company (SEMPAC) recently signed a contract with the Swiss firm of Bühler Bros Co Ltd (Uzwil - St Gall) to build two groups of flour mills at the Saida and Ouled Mimoun, near Tlemcen.

Each consists of a flour milling plant with an output of 100 tonnes per day, a semolina plant with the same output and a silo for the storage of wheat with a capacity of 28,000 tonnes.

This is the second contract the Swiss firm has signed with SEMPAC, the previous one being in 1969, for the delivery of five mills, which have since been put into operation.

## 500th BOBST AUTOPLATEN DIE-CUTTER IN WEST GERMANY

The Graphic Arts Machinery Factory, J. Bobst & Sons Co. Ltd, in Lausanne (Vaud), recently delivered an Autoplaten die-cutter to the German firm of Quack & Fischer GmbH at Viersen (Rhineland).

This was the 500th Autoplaten sold by Bobst in West Germany. The German firm is medium-sized with some 170 employees and a turnover of 15 million DM.

Its output (7,600 tonnes in 1974) consists mainly of paperboard folding boxes. Quack & Fischer is a long-established client of Bobst, having bought its first Autoplaten in 1955; it was an SP 1080 model, which is still in operation as part of four Autoplatens with a speed of up to 4,000 sheets an hour.

The 500th Autoplaten, an SP 1120-E model, can now turn out as many as 6,500 sheets an hour. The first Autoplaten, type AP 900, was designed and built by Bobst back in 1940.

This press was the basic design and forerunner of a wide range of Autoplatens, of which some 3,600 units of various models are in operation all over the world today.

## LANDIS AND GYR IN IRAQ

Landis and Gyr Co Ltd (Zug) have signed a contract with the Iraqi Ministry of Industry for the design, construction and fitting of a state meter factory at Baquba, just under 40 miles from Baghdad.

The partial manufacture and assembly of meters for use in homes could start at the end of 1976. The licensing contract includes not only the supply of know-how and the delivery of production plant but also the supply of parts that are not yet produced in Iraq.

Until the new factory at Baquba is ready for operation, Landis and Gyr will deliver a large quantity of electric meters to Iraq.

## SWISS WATCHES FOR THE APOLLO-SOYUZ MISSION

The Apollo-Soyuz space mission, in which an American and a Russian spaceship rendezvoused in space and coupled together for two days, took place in July.

Engineers, scientists, astronauts and cosmonauts of the two countries have been working for over two years to ensure the success of this historic rendezvous.

In programmes of this kind, it is obviously preferable for certain equipment on board the spaceships to be common to both crews. It is, in particular, indispensable for the astronauts to have the same time to the nearest second.

Consequently all members of both crews wore high-precision Swiss "Omega Speedmaster" watches, which have already proved their worth on several space trips.

## SAURER SIGNS BRAZILIAN CONTRACT

Adolph Saurer Co Ltd, at Arbon (Thurgau), whose utility vehicles and textile machines are known all over the world, has signed a co-operation contract with the biggest Brazilian textile machinery factory, "Howa do Brasil SA" of Sao Paulo.

This agreement concerns the production in Brazil of certain types of Saurer weaving looms, which will be added to the manufacturing programme of the Brazilian firm.

The Swiss firm has also won another big export success, including orders for over 25 million francs' worth of weaving looms from a country in the Near East.

## FOREIGN AWARDS FOR SWISS MEDICAL AND SCIENTIFIC FILMS

The pharmaceutical firm of Sandoz (Basle) has been awarded two gold "Anne" medals with the effigy of Queen Anne of Brittany.

These medals were awarded to the firm by the jury of the Fifth International Medical Film Festival, at Nantes (France).

One of this firm's two prize-winning scientific films is devoted to the diagnosis of autism in infancy and was described as the best didactic film in the infant psychiatry category, while the other, entitled "Drepanocytose", deals with genetic medicine.

## WIDE PRICE RANGE OF SWISS CHEMICAL PRODUCTS

Classified under 535 different customs headings, the thousands of chemical products exported by Swiss industry are very different in value.

In 1974, the two extremes were sulphuric acid, costing 13 centimes per kilogram, of which 33 tonnes was

exported, and hormones (natural and synthetic) costing 10,429.02 francs per kilogram, of which 6,241 kg was sold abroad.

## SOLAR BATTERY WATCH

Applying a very sophisticated technique used in space conquest, a watch factory at La Chaux-de-Fonds (Neuchâtel) has produced a watch that converts light into electricity.

This quartz timekeeper indicates the hours, minutes, seconds, days and months. The calendar mechanism is programmed for four years. This high precision instrument is extremely reliable and requires no maintenance; dry batteries store solar energy, so that the battery never needs changing.

## SWISS PHARMACEUTICALS IN INDONESIA

On two recent occasions the Indonesian government had reason to express its satisfaction at seeing the Swiss pharmaceutical industry taking an interest in Indonesia.

The Indonesian Minister of Public Health has inaugurated a factory built in the vicinity of the capital by the Basle pharmaceutical firm Hoffmann-La Roche; it will employ 130 workers and produce the main medicines manufactured by the Swiss firm at the rate of 10 million packages per year.

On this occasion, an atomic absorption spectrophotometer was donated to the State Quality Testing Laboratory.

Shortly afterwards, the Indonesian government took possession of a school for pharmaceutical laboratory assistants at Djakarta, all of whose equipment in the way of instruments and technical facilities had been presented in 1973 by another Basle chemical firm, Ciba-Geigy, which also provided the technical training of the first batch of students.

From now on the training will be carried out by Indonesian nationals, and the government has expressed its wish to develop this institution made possible thanks to Swiss private enterprise.

## SWITZERLAND'S PARTICIPATION IN EUROPEAN SPACE RESEARCH

The European Space Research Organisation (ESRO), through its general contractor, has ordered from Oscilloquartz Co Ltd (Neuchâtel), a firm affiliated to Ebauches Co Ltd, the time and frequency installation required for the Geos/Meteosat earth station.

This station will make it possible to control and operate two satellites, scheduled for launching by ESRO during the course of next year. Geos, the first European geostationary satellite, will study the distribution of the charged particles at geostationary altitude and measure the electric and magnetic fields.

As for Meteosat, a geostationary meteorological satellite, it forms part of

the Global Atmosphere Research Programme (GARP). This programme is designed to ensure the permanent observation of clouds for the visible part of the earth's surface, determine ground temperatures and temperature at the tops of clouds, deduce the speed of the winds from the movements of the clouds with a precision of three metres a second, and transmit pictures of the earth to the ground.

The ground station, located at Odenwald, near Darmstadt (West Germany), will receive the plant ordered from Switzerland by the autumn.

This equipment, consisting of two caesium standards, meets extremely strict stability requirements (0.1 microseconds during 30 minutes) and precision requirements (10 microseconds in relation to the universal time scale).

## GUESTS OF SWISS INDUSTRY

Tourists wishing to gain an insight into working conditions in Swiss industry are invited to take tours of factories and plants. Several enterprises schedule regular tours, or offer them by appointment. Among them are the chocolate factory in Broc (Canton Fribourg) belonging to the Société des Produits Nestlé SA, the Rotary SA watch factory in La Chaux-de-Fonds, the model cheese factory in Gruyères (open from six in the morning to six at night daily) or the Zingg processed cheese factory in Liebfeld (outside Berne).

In the wine country of Eastern Switzerland, visitors may view the presses of Rahm & Co in Hallau; in Serrières (near Neuchâtel), the tobacco factory of Tabac Réunies SA; in Rheinfelden (near Basle) the Feldschlösschen breweries (note: open only to visitors arriving by train or motor coach, and not to drivers of private vehicles).

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