

# A new Swiss turbine-pump for hydroelectric power stations

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### **A PRESSING TOPICAL PROBLEM: THE DISPOSAL OF REFUSE**

The town of The Hague will destroy its household refuse in an incinerating plant built by Von Roll Co. Ltd. in Zurich. This plant, which is equipped with three furnaces, will be able to handle as much as 1,000 tons of refuse daily. The steam produced will be converted into electricity. The two generating sets with a capacity of 25,000 kW., will be supplied by the Swiss firms of Escher Wyss and the Oerlikon Engineering Company. The project allows for the future expansion of the plant by the addition of a fourth unit.

[O.S.E.C.]

### **A GIGANTIC NUMERICAL CLOCK**

The Swiss watchmaking industry has specialized among other things in high precision timing systems for sports events. The latest achievement in this field is a gigantic numerical clock, made by a big watchmaking firm in Bienne. This clock, specially designed for the international ski races at Grindelwald and the Lauberhorn, is equipped with a very large score board, making it possible at distance of up to 800 feet, to read the exact times of competitors. It works in synchronization with the other timing appliances and indicates the minutes, seconds, tenths and hundredths of a second thanks to its system of luminous figures formed of light bulbs, this numerical clock enables a large crowd of spectators to follow the race better. But its real originality lies in the fact that it immediately and automatically indicates each racer's time thanks to a fully transistorised electronic remote control system. The times of arrival remain posted for a few seconds, until the apparatus passes on to the timing of the next competitor.

[O.S.E.C.]

### **A NEW SWISS TURBINE-PUMP FOR HYDROELECTRIC POWER STATIONS**

A power station in the south of Switzerland recently ordered from the Charmilles Engineering Works, in Geneva, a 10,000 kW turbine pump for a difference of level of about 1,300 feet. This machine, which is quite a recent creation, has been christened Isogyre, because the direction of rotation remains the same whether working as a turbine or a pump. The common shaft carries a turbine wheel and a pump wheel side by side, making it possible not only to keep the direction of rotation the same for both types of operation, but also to design each driving wheel specifically for its exact working requirements, i.e. either as a turbine or as a pump. In this way it is possible to design the blades of the wheels so as to obtain maximum output, which is not possible with reversible turbine-pumps, with which a compromise has to be made between the working conditions required of a turbine and a pump. The unchanging direction of rotation makes it possible to switch very rapidly from one operation to the other, an advantage highly appreciated by electricity producers for the absorption of surplus production (pumping) or the meeting of peak demands (turbine). Consequently, a new Swiss machine has made its appearance on the market, showing that no matter how highly developed a technique may be, it is still open to improvement when ingenious minds are determined to find new solutions.

[O.S.E.C.]

### **SOUTH AFRICA PLACES A BIG ORDER WITH SWISS INDUSTRY**

In order to enlarge the Salt River power station in the Cape of Good Hope area, the South African Electricity Supply Commission has ordered two turbogroups with a power of 60,000 kW. each from the joint Escher Wyss and Oerlikon Engineering Company Department. This order, which represents a very fine success in view of the very keen Japanese and European competition, is the biggest awarded in South Africa to these two firms' joint department set up four years ago. The turbogroups each comprise a two-unit steam turbine and a hydrogen-cooled turbo-alternator. Their total length will be just over 72 feet and their weight 88 tons. The alternators will be equipped with an extremely sensitive transducer regulating device produced by the Oerlikon Engineering Co., which will improve the reliability of the machines.

[O.S.E.C.]

### **TWO OLD FAITHFULS!**

In the Canton of Aargau there are four alternators which, except for periodic overhauls, have supplied current continuously for twenty-four hours out of every twenty-four since 1894, that is to say for the last seventy years. These machines, built by the Oerlikon Engineering Company (Zurich), are of the same type as the first Oerlikon triphase alternator, built in 1891 for the first transport of triphase energy in the world. To begin with these four machines had a power of 270 kVA., which after rewinding in 1928 was raised to 400 kVA., while the Jonval turbines, supplied by Escher Wyss of Zurich, were replaced in the same year by Francis turbines built by the same works.

[O.S.E.C.]

### **A LANDMARK IN SWISS TRANSPORTATION OF ENERGY**

Switzerland has just put up her first two lines for the transport of electricity at 380,000 volts, the voltage recently adopted by the leading European countries for long-distance transport of electricity. The first of these lines has just been put into operation, connecting two big hydro-electric power stations recently completed on the Rhine, in the Canton of the Grisons, to the Breite distribution centre near Winterthur. This is the first section of an international line which will shortly connect the Swiss hydro-electric production centres to the power stations in the Cologne district. It is interesting to note that Swiss engineers have supplied, for the transformer and coupling stations on this line, a high tension equipment well suited to its role and satisfying all requirements in the way of safety precautions and reliability.

[O.S.E.C.]

### **A NEW KIND OF SWISS TRAIN**

Last year the Swiss Federal Railways put a new type of train into service. It is a fire-fighting and rescue train for use in tunnels and consisting of a rescue carriage equipped with compressed-air breathing apparatuses and a wagon with a water tank holding nearly 4,000 gallons for putting out fires, as well as a motor-driven pump and water-, foam- and powder-type extinguishers. This train, propelled by an ambimotor traction-engine and designed specially for rescue work in tunnels, is based at Göschenen, at the northern entrance to the St. Gotthard tunnel. Other trains of the same kind will be put into operation later.

[O.S.E.C.]