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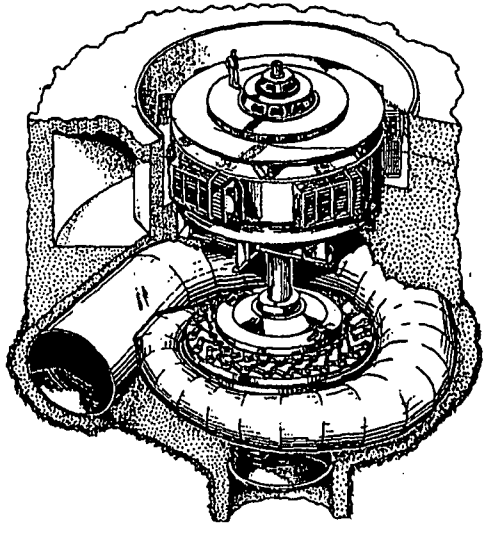

Coming Events

April 12-15—American Society of Mechanical Engineers, Region VIII annual meeting, Jung Hotel, New Orleans. ASME Reservations Dept, Jung Hotel, Canal St, New Orleans 12, La.

April 13-15—American Society of Lubrication Engineers, annual meeting, Hotel Statler, Boston, Mass. W P Yoe, claus, Jr, ASLE, 343 S Dearborn St, Chicago 4, Ill.

April 22-24 — American Institute of Electrical Engineers, Southern district, Seelbach Hotel, Louisville, Ky. H H Hipline, secy, AIEE, 33 W 39th St, New York 18, N. Y.

April 28-30—American Society of Mechanical Engrs, spring meeting, Drake-Warrick Hotel, Columbus, Ohio. D Schier, mgr, ASME, 29 W 39th St, New York 18, N. Y.

June 15-19—American Institute of Electrical Engineers, summer general meeting, Chalfonte-Haddon Hall, Atlantic City, N. J. AIEE, 29 W 39th St, New York 18, N. Y.

World's Largest Reversible Turbine-Pump

Contracts for the largest electric generator-motor and reversible turbine-pump ever built have been let to the Allis-Chalmers Mfg Co. The equipment will be the heart of a pump-storage project of Hiwassee Dam in southwestern North Carolina on the power network of TVA. It is scheduled for completion late in 1955.

In this installation a single hydraulic machine will operate in one direction as a turbine and in the reverse direction as a pump. A direct-connected electrical machine will serve as a generator for turbine operation and as a motor for pump operation.

When in service, water from Hiwassee reservoir, driving the unit as a turbine-generator, will add needed energy to the TVA system for peak loads. During off-peak periods, when surplus power is available from other plants, the unit will operate as a motor-driven pump to lift water back into the reservoir. In other words, it will act as a huge storage battery for storing energy.

The project has many unusual aspects. The reversible pump-turbine will use the largest francis-type runner ever built. As a turbine it will have a maximum rating of 120,000 hp. When motor driven, the unit will have a pumping capacity of 3.3 billion gallons per day, *nearly three times as much as New York* City requires daily. Each irrigation-pump at Grand Coulee is rated at 1 billion gpd.

The generator-motor is equally imposing. As a motor it will be the world's largest, rated 102,000 hp at 106 rpm. It will develop about 50% more power than the motors driving the Grand Coulee pumps. As a generator it is rated 70,000 kva, 13,800 v.

In a normal cycle of operation, the pump will begin lifting 5200 cfs of water from Apalachia into Hiwassee lake under a 135 ft head. When the upper reservoir is filled, head will increase 254.5 ft, and pumping capacity will drop to 3900 cfs against a 205 ft head.

At the beginning of turbine operation with a full reservoir, the unit will generate 120,000 hp and drop to 36,000 hp as the reservoir approaches its low point. Guaranteed efficiencies are 90% as a pump and 89.5% as a turbine.

Application of this type of unit is economical because low-cost off-peak power is used for pumping, and after which the same water generates high-cost peak-load power.

Cleaver-Brooks Acquires Escher-Wyss American Rights

The Cleaver-Brooks Co of Milwaukee, Wis., has been granted broad sales and manufacturing rights for the North American continent by the Escher-Wyss Co of Zurich, Switzerland. The arrange-

(*Continued on page 204*)


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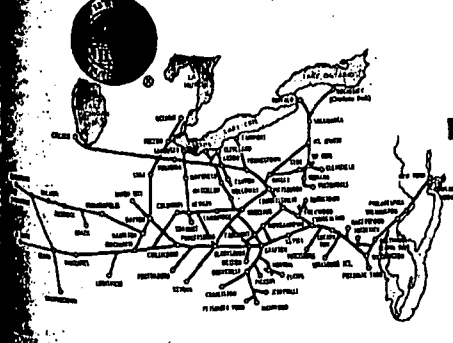

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