

ENGINEERING

Tides Yield Continuous Power In English Experimental Plant

Unique Storage Method in Which Water is Heated By Friction Supplies Energy at Flood Tide

AN EXPERIMENTAL power plant which generates electricity continuously from the ebb and flow of the tides has been constructed and successfully operated at the Avonmouth Docks, in the Bristol Channel.

The plant is the invention of Paul Shishkoff, formerly a Russian subject. It includes a novel method of storing the excess power produced at low tide so that a continuous supply of energy can be obtained at all times. The capacity of the installation is three hundred horsepower.

Water for operating an ordinary turbine is caught within a dock at high tide. Then, as the tide recedes, the water is allowed to run out of the dock through a vertical pipe at the foot of which is the turbine, or water wheel. This wheel is connected by a vertical shaft to an alternating current generator.

A working difference of level between the inside and outside of the dock of from seven feet at high tide to thirty-two feet at low tide is thus made available. The plant is so designed that when this working head of water is at its greatest more power is produced than the generator can take care of.

Excess Power Stored

At these times a water brake on the shaft with the driving wheel is used to store the excess power. This brake really churns water and thus heats it. The water, heated to 390 degrees Fahrenheit, enters a large vessel called an "accumulator," where it is kept under 200 pounds per square inch pressure until the direct power supply from the water wheel falls off.

The superheated water from the accumulator is now released under reduced pressure to form steam. Heat necessary to produce vaporization is derived from the remaining water, which is slightly reduced in temperature.

This steam drives a turbine connected to a generator. Thus power is available even when the low tide level can not be used directly. The exhaust steam from the turbine is condensed and re-

turned to the brake where it is again heated at times of maximum power.

The pumping of water to a higher level by means of excess power is the only other practicable means of storing power. Apart from the use of this new scheme in connection with the tides, it is of great interest in that it provides possible answer to the important engineering problem of storage.

Mr. Shishkoff has proposed that a larger model of his system be constructed in the Severn river. An artificial basin of 12½ square miles is planned to make available enough water for generating 160,000 kilowatts at peak load.

This development, it is claimed, would not interfere with the tidal flow or with navigation in the Severn.

It is claimed that electricity at forty-four hundredths of a cent per kilowatt could be made by such an installation, which compares favorably with a coal-burning plant of the same capacity.

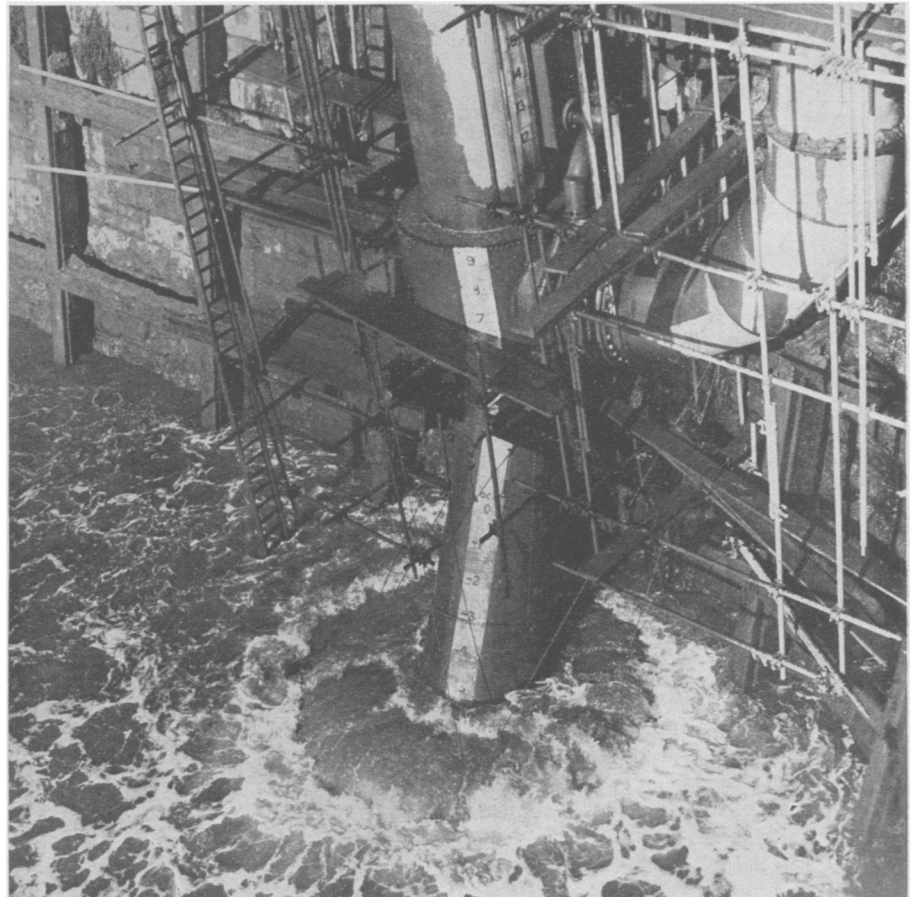
A rival scheme designed by a Swiss engineer, Huguenin, would require the building of a large dam and would use two-way flow turbines. It is still in the theoretical stage.

Science News Letter, July 18, 1931

ARCHAEOLOGY

Killing Kinsmen Possibly Practised in Mid-Europe

KILLING all of the chief's kinsmen and servants so that they might go with him into the afterworld as retinue, a custom hitherto known only in southern Russia and the Near East, may have been practised far up the Danube valley in Europe, if finds in a recently excavated Bronze Age mound near Jois in Austria have been interpreted correctly.



IT HEATS WATER BY BEATING IT

That is the novel way the experimental tidal power plant has of storing power at low tide when it is plentiful, for use at high tide, when it is hard to produce.