ENGINEERING

Models of "Old Man River" Help Keep Floods In Check

Hydraulics Conference Also Hears of Method of Making Waves Stand Still By Means of an Endless Treadmill

MORE than 250 models of floods and other water conditions on the Mississippi and other rivers have been built and studied at the U. S. Waterways Experiment Station at Vicksburg, Miss., in the past decade, Capt. Paul W. Thompson, director, told the Society for the Promotion of Engineering Education, Hydraulics Conference, meeting in Iowa City.

As a result of what has been learned from small-scale representations of the real thing, subjected to miniature streams of water, some hydraulic structures can now be computed without recourse to the experiments with models. But Capt. Thompson explained that nature's complexities are such that in many cases engineers must continue to work with models of projected river-control works in order to save money and be sure they will do the job.

Used Two Centuries Ago

USE of models in practical hydraulics is not new, Prof. J. J. Doland of the University of Illinois told the engineers. Nearly 200 years ago engineers of that time used models in laboratories in planning water power for grist and saw mills.

Make Waves Stand Still

BY MAKING experimental waves stand still, running on an endless treadmill, Prof. Harold A. Thomas of the Carnegie Institute of Technology, Pittsburgh, has been able to study their wave pattern, he reported.

Object of the new Carnegie Tech study was to investigate the pulsating kind of waves which often can be seen on the face of the spillway of a dam during times of low water, or even observed on a steep roof during a rainstorm. The pulsations consist of a series of waves tumbling down a channel which normally flows at relatively shallow depth. In long, steep channels these traveling waves sometimes attain such height and velocity as to endanger the structures in which they move.

Prof. Thomas' apparatus duplicates in reverse the conditions creating such waves. He has a special channel built with glass sides and a moving belt for the bottom. By flowing water down this channel he creates his waves and then makes them stand still for study by making the moving belt run upstream at an equal speed. Forty-two different wave profiles have already been determined by this investigation.

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PHYSICS

Ultraviolet Light Shrinks Thin Films

ULTRAVIOLET light shrinks multilayer thin films, it has been found in new research upon these remarkable thin coatings carried out in the laboratory of Dr. Irving Langmuir, chemistry Nobelist.

Vincent J. Schaefer of the General Electric Research Laboratory reports (*Science,* May 19), that a thin film of 48 layers lost a thickness equivalent to one molecular layer after an irradiation of five minutes to intense ultraviolet rays.

It appears that the rays create decomposition products which evaporate. Their disappearance makes the films shrink. It is believed that the ultraviolet light splits the molecules of stearic acid.

Thin films with which Dr. Katherine Blodgett and Dr. Langmuir have been experimenting for some time, are applied by dipping glass into solutions of stearic acid and barium stearate. By applying multiple layers of the films until they reach a thickness equal to one-quarter the wavelength of a light ray in the visible region of the spectrum it has been found possible to reduce all reflections from the surface to practically zero. This phenomenon greatly increases the transmission of the coated glass and virtually makes the glass invisible to the eye.

Research is now under way to produce ruggedness in such films so that they may be applied to optical systems, show cases and museum exhibit cases. Although Mr. Schaefer does not explicitly say so in his current report it may be surmised that his discovery of the effect of ultraviolet light on the films was secured as part of the general study of the films under many different conditions of potential service.

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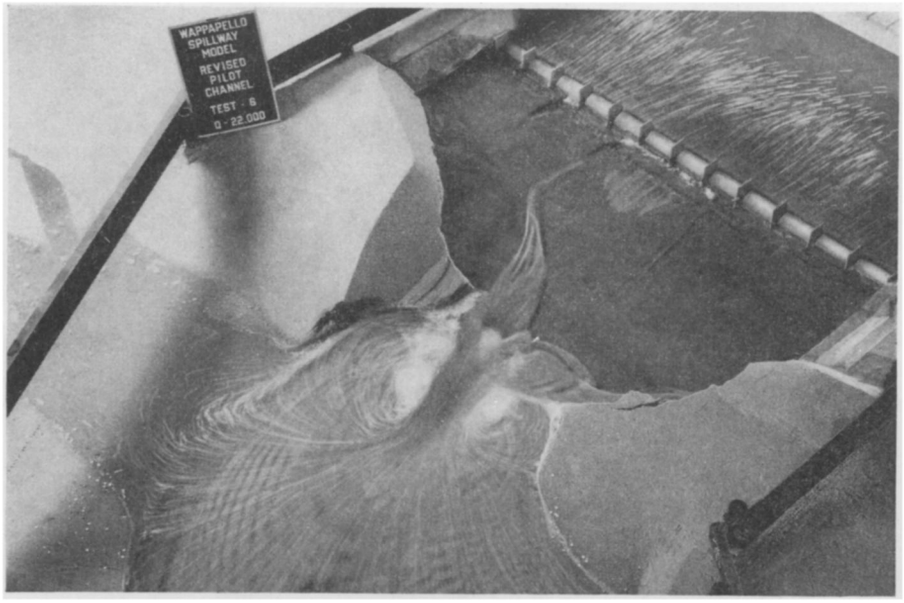

CURRENTS SHOWN

Confetti shows plainly how currents approach the spillway in this river model. Below the spillway active erosion is taking place.