

ABSTRACTS OF GRADUATE THESES

Design of a Dam on the Seyhan River, Turkey. ORHAN AKYUREK. M. S. Thesis, June 1940; Professor Lane, adviser. Design of a masonry dam consisting of overflowing and non-overflowing sections, taking into account earthquake effects. This dam forms a part of a proposed irrigation enterprise for the plains of the Seyhan River in Turkey.

Hydraulic Characteristics of a Navigation Lock with Floor Culverts. MILES M. DAWSON. M. S. Thesis, June 1939; Professor Mavis, adviser. An analysis of experimental data secured on a lock model built by the U. S. Engineers, indicating that filling and emptying can not be satisfactorily accomplished by the same culvert system and that the port area in the downstream half of lock should be less than in the upstream half.

Sediment Behavior in Upward Flow. WARREN DELAPP. M. S. Thesis, June 1940; Professor Rouse, adviser. Experimental and analytical study of variation in sediment concentration throughout suspensions produced by the upward motion of water through sand beds. (See p. 18.)

The Effect of Certain Fluid Properties Upon the Profile of the Hydraulic Jump. MORGAN D. DUBROW and JOHN C. GOODRUM. M. S. Thesis, June 1940; Professor Posey, adviser. The effect of surface tension and viscosity upon the profile of the hydraulic jump was investigated experimentally. Tap water and solutions of Aerosol were used in a six-inch flume and water, mixtures of water and glycerine, and kerosene in a two-inch flume. No well-defined trends were noted, but the profile of the jump seemed to become steeper as the viscosity increased. As an incidental result of the investigation, non-undular hydraulic jumps were observed for jump ratios of less than 2.0. When the jumps formed far enough downstream to allow the eddies which started in the head bay to converge toward the center of the flume, the profile became undular.

Practical Hydraulics in Highway Engineering. CARL F. IZZARD. M. S. Thesis, June 1940; Dean Dawson, adviser. Application of

hydraulic principles for improvement of culvert, drain, and ditch design.

Experiments on Waves in Rectangular Channels. V. A. KOELZER. M. S. Thesis, June 1939; Professor Mavis, adviser. Considerable work done on recording apparatus. Wave velocities checked Russell's formula within 10 per cent.

Reinforcement of Concrete Flume Corners. ORVILLE KOFOID. M. S. Thesis, June 1940; Professor Posey, adviser. Flume corners are subject to tensile stresses at the inside of the corners. Arrangements of reinforcing designed to resist this type of stress, tested by Waistlund and by Gumensky, were critically examined, and a new design developed. It was compared with the best design used in standard practice by tests of 16 corners with $3\frac{1}{2}$ -ft. or $4\frac{1}{2}$ -ft. legs. Simultaneous load and strain measurements were taken, and the new design was found to have greater ultimate strength and greater toughness than the standard design. Its strength at first crack, however, showed only slight superiority.

Studies on Runoff from River Bottom Lands. MARVIN O. KRUSE. M. S. Thesis, June 1940; Professors Lane and Howe, advisers. A study of actual field data on six drainage districts along the Illinois and Mississippi Rivers gave relations between seepage into the districts and river stages outside the levees.

Design of Outlet Works of the Han River Flood Control Reservoir. HSUAN KUO. M. S. Thesis, August 1939; Professor Lane, adviser. A design is worked out in this thesis for the outlet works of a retarding basin on the Han River in China which has been proposed to control the floods of this river for the protection of the city of Hankow and adjacent communities. The construction of this reservoir has been proposed by the Han River Conservancy Bureau, a Chinese governmental organization, and this thesis carries one step farther the preliminary design worked out by them. The plan consists of a diversion channel through a rock point, the channel being controlled by stoney gates. The river would be closed by an earth dam. Hydroelectric power would be developed at the dam and locks would be provided to take care of the shipping on the Han River.

A Comparison of Lacey's Stable Channel Relations with the Conditions in the St. Clair and Lower Mississippi Rivers. CHUNG-TEH LI. M. S. Thesis, June 1940; Professor Lane, adviser. For the purpose of this thesis two channels were selected which were known to be relatively stable. One of these was the St. Clair River, the outlet of Lake Huron, in which the flow has been practically constant for several thousand years. The channel of the Mississippi River just above the forks at the lower end has been also stable for a long time although the discharge in this section has varied over a wide range. An attempt was made to compare the cross sections of these streams with the cross sections which would be indicated for these conditions by the studies of Mr. Gerald Lacey, as a result of his investigations for irrigation canals in India. Neither of these sections of rivers showed close agreement with Mr. Lacey's theories.

Hydraulics of Culverts. A. R. LUECKER. M. S. Thesis, February 1939; Professor Mavis, adviser. Flow modifications caused by entrance conditions and submergence were determined.

The Spreading of a Water Jet on a Flat Floor. ENVER MURATZADE. M. S. Thesis, August 1939; Professor Lane, adviser. This thesis is the first of a series studying the spreading of a jet of water at super-critical velocities on a flat floor. The object was to obtain data for use in design of spillway chutes where it is desired to widen and thin the water stream at the entrance to a stilling pool.

Flow Transitions in Rectangular Channels with Super-Critical Velocities. WARREN E. WILSON. Ph.D. Thesis, August 1940; Professor Lane, adviser. This thesis is a continuation of the thesis on "Spreading of a Water Jet on a Flat Floor" and attacks the problem from the standpoint of wave analysis. The application of this theory to the flow is brought out and the process by which such conditions can be analyzed is outlined. The existence of unexpected vacuums along the sides of the channel have been indicated.

Chinese River Control During the 16th Century. FA YAO WONG. M. S. Thesis, June 1939; Professor Mavis, adviser. Translation and compilation of old manuscripts in the Chinese language.