TRANSACTIONS OF JAPAN SOCIETY OF CIVIL ENGINEERS
NO. 38 (OCTOBER 1956)

ON THE BEAM THEORY REFERRING TO THE SUB-COORDINATES

Tokinobu Ishikawa, C.E. Member

Synopsis : The present paper is to show that the application of the sub-coordinates will be a help in simplifying the calculations of the beams, rigid-frames, etc.

THE EXPERIMENTAL ANALYSIS FOR SOME PROBLEMS BY THE ELECTLIC ANALOGIES

Toshihiko Yamauchi, C.E. Member

Synopsis : In this paper, the methods of the experimental analysis of the following problems by the applications or proper combinations of the circuits shown in the previous papers are described.

1. Influence lines of truss
2. Langer girder
3. Grillage beams

ON THE SCOURING DUE TO WATER JET

—— Third report ——

Seizō Awazu, C.E. Member

Synopsis: Profile of scouring due to vertical water jet is as indicated in Fig. 1. In this paper, the author proposes empirical formulas for the scouring quantities a, b and S shown in the Figure, and compares these formulas with the researches of Doddiah and Thomas.

SOME SOLUTIONS OF STEADY FLOW IN SLIT CONDUITS HAVING NON-UNIFORM CROSS-SECTION AND SLIT WIDTH

Masao Araki, C.E. Member

Synopsis: The author's previous paper entitled "Some Hydraulic Problems of The Slit Conduits", treats only slit conduits having uniform cross-section and slit width.

In the present paper, however, the author intends to discuss on hydraulics of slit conduits having non-uniform cross-section and slit width. The results of model test on a slit conduit are described briefly, and they show the close agreement with the values computed by the author's formula.

EFFICIENT DIAMETER OF A PIPE FOR CONVEYING SAND

Hazime Ogawa, C.E. Member

Synopsis: In the previous report the author gave some modification to his formula on the sediment concentration in pipe lines basing on the results of his field measurements and small pipe tests. In this paper, however, a general relation among radius, mean velocity, settling velocity and concentration of sand in pipe lines is introduced, using his modified formula. As a result the method for determining the most economical radius for the conveyance of sand is given.

FUNDAMENTAL STUDIES ON THE SAND EXPANSION OF RAPID FILTERS

Iwao Tatsumi, C.E. Member

Synopsis: The writer induced a fundamental formula of sand expansion of rapid filters with the similar idea to that on which Fair-Hatch's formula depends, and researched the effects of the factors concerning sand expansion. He also proposed a new "Coefficient of Drag" of filter sand particles in fluids in place of "Newton's Coefficient of Drag", $C_f=(24/R_e)+(3\sqrt{R_e})+0.34$, for spheres, which makes the value of the fundamental formula more approximate to the experimental results than Fair-Hatch's formula does.

DYNAMIC WATER PRESSURE DUE TO PORE WATER IN BACK-FILLENG OF QUAYWALL

Dr. Eng., Haruo Matuo, C.E. Member, Sukeo Ôhara, C.E. Assoc. Member

Synopsis: In a shaking box ($40\times90\times100$ cm) dynamic hydraulic pressure due to the pore water of saturated soils was measured.

At the beginning of the vibration, the maximum dynamic hydraulic pressure was measured which seemed to be caused by settling down of the earth. After the settlement of the earth, the amplitude of the hydraulic pressure was some what larger than the value calculated by the formula proposed by Prof. Werner and Sundguist.

The difference between the calculated and measured values must be, it is concluded, due to the pore pressure caused by the movement of sand particles.

The value obtained from the formula proposed by Prof. Anzô did not show good agreement with the experimental results.

EXPERIMENTAL STUDIES ON SEISMIC EARTH PRESSURES (REPORT-NO. 1.) EARTHQUAKE GENERATOR AND OSCILLATING SOIL PRESSURE MEASURING APPARATUS

Matsuhei Ichihara, C.E. Member, Shin Niwa, C.E. Assoc. Member

Synopsis: Earthquake problems of quaywalls and other retaining walls are considered far more difficult to be solved, than those of ordinary buildings. This is because these kinds of installations have a higher degree of interaction with the mass of ground than the latter. In other words, the problems cannot be treated adequately unless these interactions are fairly understood.

In order to investigate these fundamental problems, an earthquake generator of a large size and a large model quaywall were built, and the first test was successfully carried out in the early spring of 1953. The tremors can be felt at a place about one kilometre away.

This report only proposes to describe the earthquake generator and a new instrument to measure oscillating soil pressures caused by the machine.

STUDY ON THE FUNDAMENTAL THEORY FOR PLANNING A PARKING PLACE

Masamitsu Mōri, C.E. Member

Synopsis: In the case of planning and operating parking places, it is necessary to decide that the proper capacity of a parking place which not only satisfies parking demands as possible, but also is to be made use of more efficiently. Then, the author has been studying theoretical researches on the relations between several factors essential for the plan of a parking place and has derived a fundamental theory for operating a parking place. As a result, a direction on planning parking places is described in this paper.

Discussion of the "An advanced method of a static earthquake-proof computation on bridge piers and well constructions (Vol. 41, No. 2)"

Nobuo Sakai, C.E. Member and Hisao Gotō, C.E. Member

Discussions of the "Deformation of the cross-section in box girder (Vol. 40, No. 11)"

Dr. Eng., Sumio Nomachi, C.E. Member and Sadao Komatsu, C.E. Member