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Department of the Navy
Office of Naval Research
Contract N6onr-24424

FINAL REPORT

SUMMARY OF REPORTS AND PUBLICATIONS

ISSUED ON CONTRACT N6onr-24424

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OF THE
HYDRODYNAMICS LABORATORY
CALIFORNIA INSTITUTE OF TECHNOLOGY
PASADENA 4, CALIFORNIA

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Hydrodynamics Laboratory
California Institute of Technology
Pasadena, California

Report No. E-24.8

Copy No. 44

December 1954

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Hydrodynamics Laboratory
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Introduction

This memorandum is to list technical reports prepared under Contract No. N6onr-24424 during its life, which extended from April 1, 1949 through April 30, 1954. As may be seen from the report titles listed below, the research dealt almost exclusively with the dynamics of underwater bodies running in open cavities. A major portion of the work dealt with the basic hydrodynamics of this type of flow, and hence was unclassified. However, part of the work which dealt with some of the more specialized aspects of the problem was, of necessity, classified. In all, eight unclassified reports and five classified reports were prepared. Mr. J. P. O'Neill was in charge of the studies during the active life of the project, and, as may be seen from the report authors, he was ably assisted by several active workers, principal among whom were the following: Messrs. Byrne Perry, Taras Kiceniuk, W. M. Swanson and Dr. E. Y. Hsu.

List of Reports

A. UNCLASSIFIED

1. O'Neill, J. P. and Perry, B., "Hydrodynamics of Underwater Jet Propulsion - Progress Report for Year Ending March 31, 1950," C. I. T., Hydro. Lab. Report (un-numbered).
2. O'Neill, J. P., "The Dynamics of Underwater Bodies Running in an Open Cavity," C. I. T., Hydro. Lab. Memo Report No. M-24.1, April 24, 1951.
3. Swanson, W. M. and O'Neill, J. P., "The Stability of an Air-Maintained Cavity behind a Stationary Object in Flowing Water," C. I. T., Hydro. Lab. Memo Report No. M-24.3, Sept. 1951.
4. Perry, B., "The Effect of Aspect Ratio on the Lift of Flat Planing Surfaces," C. I. T., Hydro. Lab. Report No. E-24.5, Sept. 1952.
5. Perry, B., "Evaluation of the Integrals Occurring in the Cavity Theory of Plesset and Shaffer, C. I. T., Hydro. Lab. Report No. 21-11, Dec. 1952.
6. Perry, B. and Hsu, E. Y., "Water Tunnel Measurements on Spheres in Cavity Flow, C. I. T., Hydro. Lab. Report No. E-24.9, April 1954.

A. UNCLASSIFIED (cont'd)

7. Perry, B., "Lift Measurements on Small-Scale Flat Planing Surfaces," C.I.T., Hydro. Lab. Report No. E-24.10, April 1954.
8. O'Neill, J. P., "Flow Around Bodies with Attached Open Cavities," C.I.T., Hydro. Lab. Report No. E-24.7, Dec. 1954.

B. CLASSIFIED

1. O'Neill, J. P., "Forces on Cavity-Running Bodies," Proceedings of the Eighth Underwater Ballistics Conference, Part II, Confidential Sessions, Oct. 3-4, 1950, Office of Naval Research, Washington, D. C., pp. 35-44. CONFIDENTIAL
2. Perry, B., "The Effect of a Gas Jet on the Cavity behind a Body," Proceedings of the Eighth Underwater Ballistics Conference, Part II, Confidential Sessions, Oct. 3-4, 1950, Office of Naval Research, Washington, D. C., (abstract only) pp. 64-66. CONFIDENTIAL.
3. O'Neill, J. P., "The Underwater Projectile in a Cavity," C.I.T., Hydro. Lab. Report No. M-24.2, Sept. 13, 1951. RESTRICTED.
4. Kiceniuk, T., "Experimental Study of Froude Number Modeling for Cylinders Planing on Water," C.I.T., Hydro. Lab. Report No. E-24.4, Jan. 7, 1952. RESTRICTED.
5. Kiceniuk, T., "A Preliminary Investigation of the Behavior of Condensable Jets Discharged into Water," C.I.T., Hydro Lab. Report No. E-24.6, Dec. 1952. CONFIDENTIAL.