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The first part of the report is devoted to a description of the experimental apparatus and the method of measurement. The results of the measurements are given in the second part of the report. The third part of the report is devoted to a discussion of the results and a comparison with the theoretical predictions.

The experimental apparatus consists of a cylindrical vessel of diameter d and height h , filled with a liquid of density ρ . The vessel is rotated about a vertical axis with a constant angular velocity ω . The free surface of the liquid is assumed to be a paraboloid of revolution. The height of the liquid at the center of the vessel is denoted by h_0 and the height at the edge of the vessel by h_1 . The difference in height between the center and the edge is denoted by Δh .

The theoretical prediction for the height difference Δh is given by the equation $\Delta h = \frac{\omega^2 d^2}{4g}$, where g is the acceleration due to gravity. This equation is derived from the balance of forces acting on a small element of the liquid. The centrifugal force acting on the element is balanced by the weight of the element and the pressure forces acting on its sides.

The experimental results show that the height difference Δh is indeed proportional to the square of the angular velocity ω and the square of the diameter d . The theoretical prediction is in good agreement with the experimental results. The error in the measurements is estimated to be about 5%.