of a pendulum the square of which is inversely proportional to gravity. All or nearly all other measurements of gravity are referred to these locations and all relative determinations in North America are referred to one of them.

Observations extended over lengthy intervals at each place: at Potsdam between 1898 and 1904; by Kühnen and Furtwangler, at Washington between 1933 and 1935; by Heyl and Cook, and at Teddington, near London, by Clark, between 1936 and 1939. These three places have been compared by relative measurements with pendulums which show that the previously accepted value for Potsdam, to which all relative measurements in North America are referred, is in error by 17 milligals in terms of the commonly accepted unit of one milligal equals 0·001 centimetre per second, per second. Although there is a slight difference depending on how the relative measurements are interpreted, Heyl's determination suggests a correction of 20 milligals to Kühnen's value and Clark's result gives a correction of 15 milligals, the mean of the two being 17 milligals. This is the correction (it is negative) recommended by the sub-committee on gravity of the National Research Council of the United States in 1942.

Dryden, who, in 1942, made a re-examination of the Potsdam determination considers that an unwarranted correction was made by the Potsdam observers to account for certain systematic errors. If this correction had not been made Dryden argues that the Potsdam result would have been 12 milligals less and, in order to obtain the most probable absolute values for stations expressed in terms of the Potsdam system, he would subtract 15 milligals.

The absolute measures at Washington appear correct to better than 10 milligals. They may be subject as has been the experience in the past with pendulum results, to some unsuspected systematic error. An accurate absolute determination of gravity by some method other than pendulums is most desirable.

The first serious attempt in Canada to measure gravity appears to have been an absolute measurement by A. M. Scott in the School of Practical Science of the University of Toronto, Ont., in 1896. Observations were made with a Kater's pendulum constructed of steel and manufactured by Nalder Brothers of London, England. Observations and investigations in connection with the determination extended over a period of three months or more. Mr. Scott, who was then an undergraduate in Arts, presented the results of his work and a valuable thesis on the pendulum in competition for the 1851 Science Scholarship. He obtained 980·304 centimetres per second, per second, or 32·3590 feet per second, per second, for the acceleration due to gravity or in other words for the increase in velocity acquired in one second by a freely falling body at Toronto. The most direct way to determine gravity, but apparently not the most accurate, would be to measure this increment in velocity directly.

Scott estimated the probable error of his determination at about one part in one hundred thousand or 0·01 cm. per second, per second. Recent observations on the campus of the University with a gravimeter indicate that Scott's value is in error by about 140 milligals which compares rather unfavourably with an accuracy of 50 milligals obtained by Kater in an absolute determination in London, in 1818. Employing an invariable pendulum, Kater made a number of relative determinations between the Isle of Wight and the Orkneys with an accuracy of from 2 to 3 milligals equal to or better than that frequently obtained in recent years with invariable pendulums.