

December 5,
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Dear Jeffreys,

For the second edition of Statistical Tables I have been wrestling with the problems you raise on the value of gravity in the light of S.C. Brown and E.C. Bullard, Roy. Soc. Proc. A. 175. p.113.

These writers give two values for Washington, which they regard as in satisfactory agreement and which average 980.082, and a value for Teddington (N.P.L.) 981.181. They conclude also that in absolute value Potsdam, and in consequence nearly everything else derived from Potsdam, is .017 too high. I should be glad to know if you agree approximately with all this.

With respect to the equator, poles and standard value (possibly referring to 45°) the form of statement I should like to be pro forma

Washington	39°	980.082	
Teddington	$51^\circ 25'$	981.181	
whence			
Equator		978.058	
Pole		983.169	and
Standard value (45°)		980.604.	

This would be at least intelligible, and I should like to make it approximately true. I presume that Brown and Bullard's values have been reduced to sea level, but they do not mention the latitudes of their stations. Probably you have those of the Bureau of Standards

and the M.P.L. sufficiently accurately, which seems to mean at least as accurate as the nearest minute. I am supposing also that for such a purpose the acceleration is taken to be linearly related with \cos^2 or \sin^2 . . . Without some such convention I do not know what the equatorial and polar values can mean. Navigators at least use such a formula, with an adjustment for height above sea level.

Yours sincerely,