

December 10, 1941

Dear Jeffreys,

Thanks for your letter. I can quite see the convenience for geodetic purposes of continuing to use conventional values of gravity based on Potsdam, but I take ~~it~~ it to be certain that no one interested in the figure of the earth would accept our figures uncritically, and the form of statement I propose does, in any case, safeguard such persons, and indeed anyone else, from thinking that they are other than direct determinations at two stations, with a conventional world formula in accordance with them.

I feel, in fact, that the business of Yates and myself is to be clearly intelligible, just as that of Brown and Bullard was to be accurate in the figures which they give. If I understand Brown and Bullard aright, the pendulums were ^{us}slung at the N.P.L. July/August 1939 and again on returning from the State in early October of the same year, without encountering the kind of disturbance which you mention in the cases of Anglo-Indian comparisons.

If the results were reduced to sea-level I do not understand the statement (p. 113) "As the mean centre of gravity of ~~Hale~~ ^{Heyl} & Cook's pendulum was 1.5 metres above the floor, a correction $-.0002 \text{ cm/sec.}^2$ "

is required.

Thanks for mentioning the second harmonic term with a maximum correction of about 5.8 millegals. I presume that this is well established on theoretical considerations to the low accuracy for which it is required. Its importance lies in deriving the first harmonic term from the values at Teddington and Washington.

We had put in 6.67 for the constant of gravitation, without, however, any standard error. I think we ought to leave Barnes geologic periods alone, as they differ from Holmes', and they are clearly only the roughest estimates.

Thanks very much,

Yours sincerely,