This apparent contradiction in theory and practice has occurred because the authors have ignored the restriction inherent in the expansion of the function $\bar{g}(r)$. The expansion for $\bar{g}(r)$ is permissible only in the circle of convergence and the representation is no more valid beyond that region. Since this series is an equivalent form of Taylor's series, the radius of convergence of this series for $\bar{g}(r)$ is also the distance from the centre of the circle to the closest singular point. In the case of the sphere cited this would mean that the expansion (and the interpretation based on that expansion) is incorrect for all values of $R > Z$. The ratio test clearly shows that the given series for the case of the sphere is absolutely convergent for all values of $R < Z$ (instead of $R < 0{\cdot}88\ Z$). It can also be added that the convergence/divergence of the series inside/outside this region of convergence is not a function of the number of terms chosen.

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[1] Rao, B. S. R., and Radhakrishnamurty, I. V., *Nature*, **206**, 179 (1965).

Dr. Negi's criticism seems to have been based on a misreading of the purpose of our communication[1]. What we actually meant to convey was that the average radial gravity $\bar{g}(r)$, expressed in Taylor's expansion or in any of its allied forms, cannot always be accepted in view of its oscillatory character. Thus such representation should be made with some caution and only below a certain range of radius, depending on the depth of the body and the location of the point of measurement.

Secondly, Dr. Negi's argument that the expansion for $\bar{g}(r)$ is permissible only in the circle of convergence and that the radius of this circle should be Z and not $0{\cdot}88\ Z$ is clearly untenable. If we extend this argument it means that Taylor's expansion is valid only for its closest singular point, which would result in the divergence of the series for all positive values of r, which is not correct.

Dr. Negi has further pointed out that the convergence/divergence of the series inside/outside this region of convergence is not a function of the number of terms chosen. One can easily disprove this argument by adding terms, one by one, and finding out the value of $\bar{g}(r)$.

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[1] Rao, B. S. R., and Radhakrishnamurty, I. V., *Nature*, **206**, 179 (1965).

Equatorial Ionospheric Drifts

A number of authors[1-3] have shown that near the magnetic equator ionospheric drifts occur, in both the E and F regions, which are mainly westwards by day and mainly eastwards by night. Results for F region drifts at Ibadan have been given by Skinner, Lyon and Wright[1] for the International Geophysical Year (IGY) (1957–58). These show that for quiet days during equinox periods at sunspot maximum, the median velocity of drift reached a value of about 100 m/sec eastwards at midnight and a value of about 76 m/sec westwards at noon. The changes in direction occurred rather rapidly at about 0700 in the morning and at about 2000 in the evening.

A similar series of observations were made at Ibadan during the International Years of the Quiet Sun (IQSY) (1964–65), when solar activity was at a minimum. The results for October 1964 are shown in Fig. 1 in the form of a mass plot of the diurnal variation. The circles indicate median values for each hour, and the smooth curve estimates the median diurnal variation. The form of the variation is very similar to that obtained during the IGY, with mainly westward velocities by day and mainly eastward velocities by night, and with the change-overs occurring at very nearly the same times. The magnitudes of the drift velocities are, however, little more than half those observed in the IGY, being about 55 m/sec eastwards at midnight, and about 41 m/sec westwards at noon. A comparison of the two variations is shown in Fig. 2*a*. Very similar results were obtained during the World Geophysical Interval in March 1965, and a comparison of the variation for this period with the IGY variation is shown in Fig. 2*b*.

For simplicity only the smooth diurnal curves, fitted by visual estimation, are shown in Fig. 2. The uncertain-

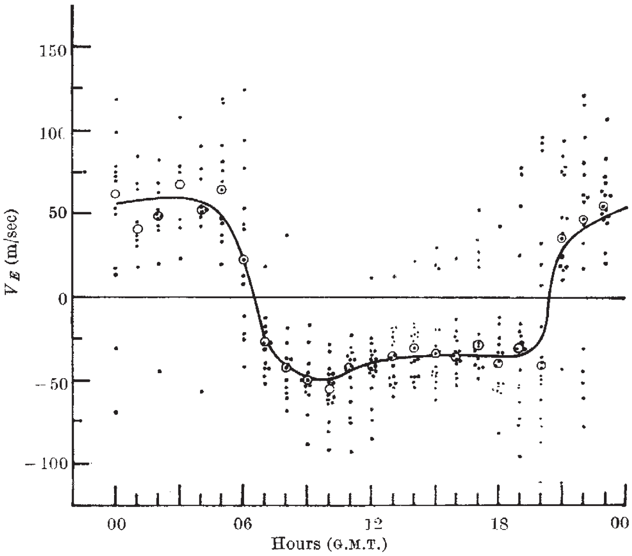

Fig. 1. Mass plot of V_E, the eastward component of F-region drift velocity observed at Ibadan during October 1964. Circles indicate hourly medians; the smooth curve is a visually estimated diurnal variation

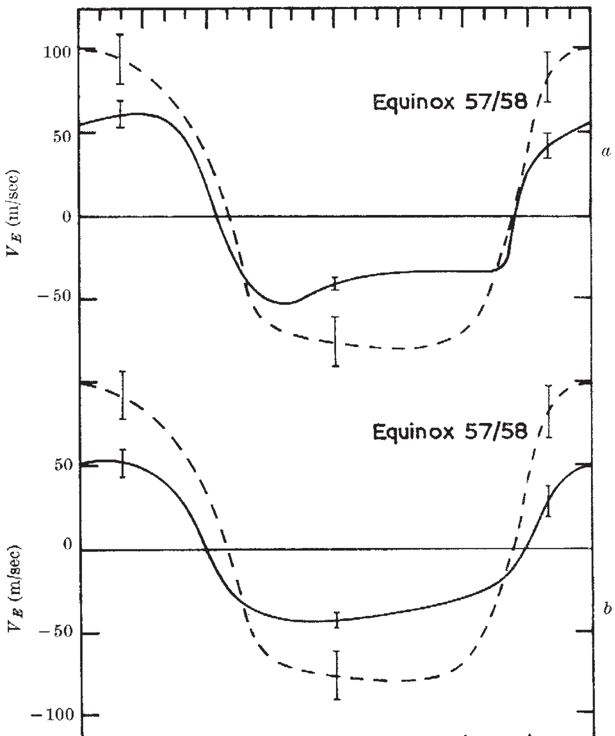

Fig. 2. Comparison of results for V_E obtained during the International Geophysical Year (broken lines) and the International Years of the Quiet Sun (continuous lines) at equinox periods: *a*, comparison for October 1964; *b*, comparison for March 1965. The error bars indicate the estimated uncertainty of values on the fitted curves shown