Appendix II: Supporting data

Regrettably, Herr Gunter KLEIN died before he could oversee the final form of his manuscript. Probably, he would have included some illustrative material of his work in connection with his hypothesis linking variations of the tidal force with the movements of bean leaves. After all, it is not feasible to propose a new theory without actually presenting any supporting data! Sketches shown in Figures 8, 9 and 10 of Appendix 1 give some indications of Herr Klein's own research methods regarding leaf movements.

Fortunately, some of Herr Klein's original tracings of bean leaf positions were still available for study, being loaned for this purpose by his widow, Frau Maria Klein, via his friend, Professor Dr Peter Becker, University of Marburg, Germany. The graphs show examples of leaf movements obtained from *Phaseolus vulgaris* and *Canavalia ensiformis*, grown and observed under the conditions mentioned in Appendix 1. In many cases, there is a clear relationship between a reversal of a leaf movement and a turning point in the tidal force, just as shown in Figure 8 of Appendix 1. Representative facsimile tracings of the leaf movements, together with the time of tidal turning (arrowheads) are shown in Figure 12.

In order to provide a further check on these data, tidal forces were kindly computed by Prof Dr E Klingelé (Swiss Federal Institute of Technology, Zürich) for the dates and location (Wernborn, near Usingen, Germany) of Herr Klein's observations. The graph corresponding to the data shown in Figure 12 is presented in Figure 13. Arrowheads indicate the turning points in the tidal force that correspond to those indicated on the graphs in Figure 12.

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Figures and Legends

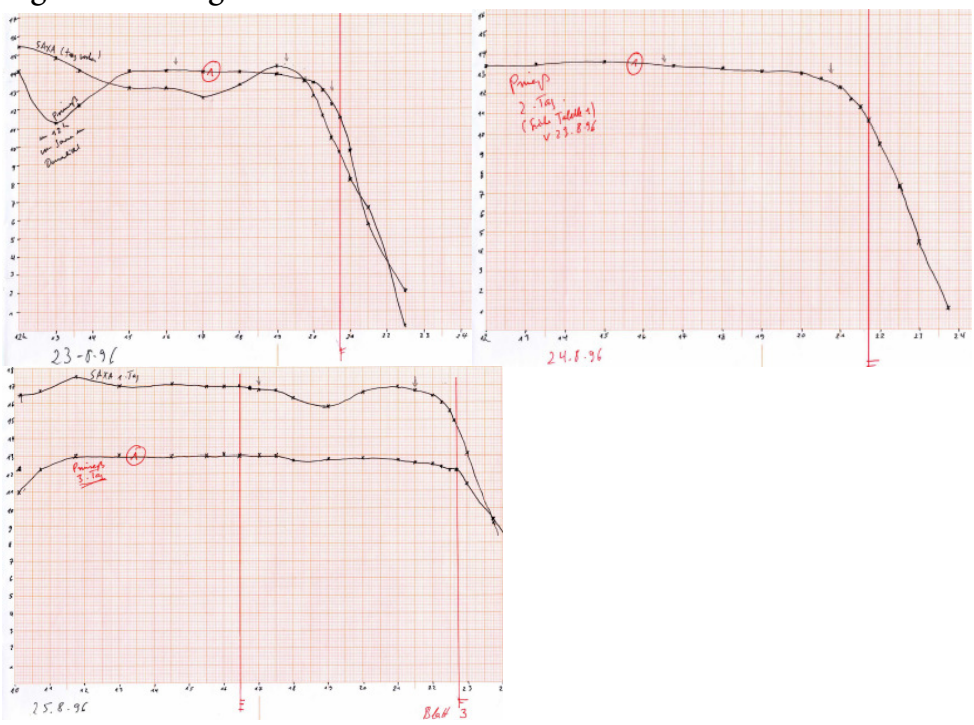

Figure 12. A facsimile of Herr Klein's observations on the movement of leaves of two cultivars (Saxa and Prinzeβ) of the bean, *Phaseolus vulgaris*. These observations were made in Wernborn, near Usingen, Germany, on 23-25 August 1996. Inscribed on the graphs is a vertical line that the author may have used to define the time when he believed the leaves to have significantly altered position. Arrowheads have been inserted onto the graphs to indicate times of the corresponding turning of the tidal force (see Fig. 13).

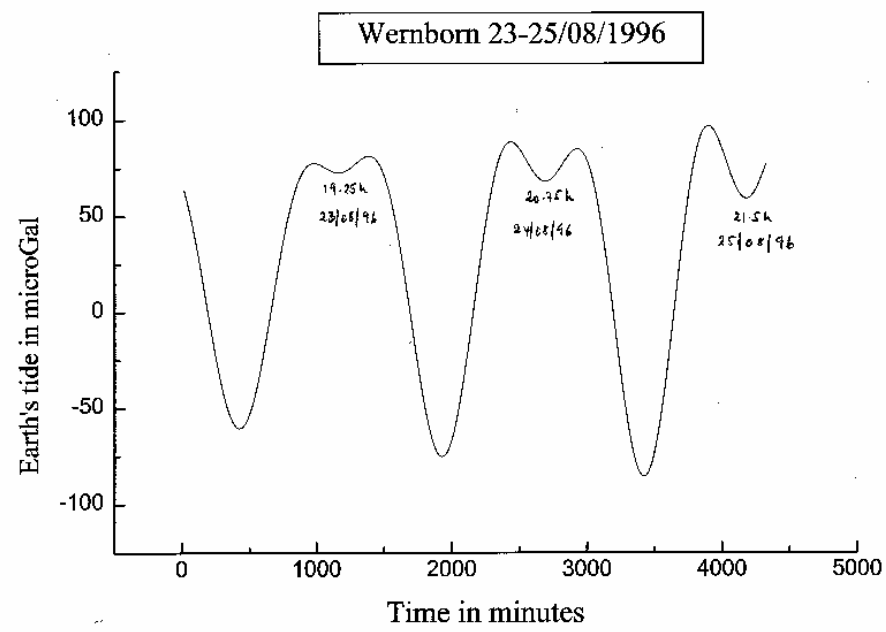

Figure 13. Variations in tidal force computed for Wernborn, near Usingen, Germany, on 23-25 August 1996. These dates correspond to the period of the observations shown in Fig. 12. Computations were kindly performed by Prof E. Klingelé (Swiss Federal Institute of Technology, Zürich, Switzerland).

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