Further researches in the statistics of *Coffea*.

(Second communication.)

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§ I.

My further investigations respecting the statistics of the varieties of *Coffea* have led in the first instance to results which may up to a certain point be indeed called a direct proof of the interpretation given in my former treatise\(^1\) dealing with increased or diminished variation in the number of leaves in consecutive branch-pairs of one and the same tree per one meter branch length of *Coffea Uganda* and *C. Robusta* respectively. I was then enabled, on the basis of curves and tables, to demonstrate a striking parallelism between the greater variability designated in *Uganda* (as contrasted with *Robusta*) and the fact that in the former plant the greater number of leaf-length-properties are irregularly distributed over the plant, while on the other hand with *C. Robusta*, in which in every part of the tree the greater number of properties of leaf-length occur in the same way, in the same proportions, in the same constellation, the above designated variation in the number of leaves per meter of branch length is practically nil.

In the same manner as with the properties of leaf-length I subsequently investigated the lengths of the internodes of the side branches. Since with each branch-pair the length of the internodes of both branches practically coincide in their variations and dimensions we may consequently take it as sufficient in future to record only one of the branches of each branch-pair. A certain periodicity in the length of internodes naturally manifests itself in every such branch. We see however by this time that this periodicity in the successive branch-pairs of one and the same tree appears as those which I have been able to demonstrate in the previous publication on leaf-length properties; viz: at different heights of the tree a definite curve is repeated, definite curve-tops persistently make their appearance again and again\(^2\). We must regard this phenomenon as the expression of the fact that a greater number of different properties are to be found in the tree which bring about the lengths of the internodes, but that these qualities are not continually actuated in the same way; so that at different heights of the tree different of these qualities predominate: I need not however go further into this question, since it is amply set forth in my former treatise. A similar kind of presentation of a frequency curve I have named the analysis of frequency curve.

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1) See vol. 10 of this periodical.

2) See, for instance, curve III of the first communication in vol 9.
I shall indeed presently try to make out whether, following these analytical methods, there exists a **direct connection** between the frequency of leaf-length and that of internodal length.

In the curve immediately following below (Curve I) the frequency-curve of the leaf-length of an example of *C. Uganda* has been analysed in the same manner that has already occurred. The measurements began at the base and advanced towards the top. At different lengths of the tree the results already obtained have been brought to expression by a curve.

![Curve I](image)

Although perhaps not so nicely as in the former communication, it is however very well to be seen here that at different heights of the tree definite tops again recur. — Curves with the same tops are represented by the same definite colour. The numbers in the curves relate to the order of succession of the branch-pairs. The tree had 66 branch-pairs; the curve with the number 66 is consequently the definitive frequency-curve of the leaf-lengths of the whole tree. The curves are thus following after 9, 14, 25, 40, and 52 branch-pairs. Now the internodal lengths of **this self-same** tree. These also have been represented by curves, in which the internodes of **those** branch-pairs have been selected which correspond