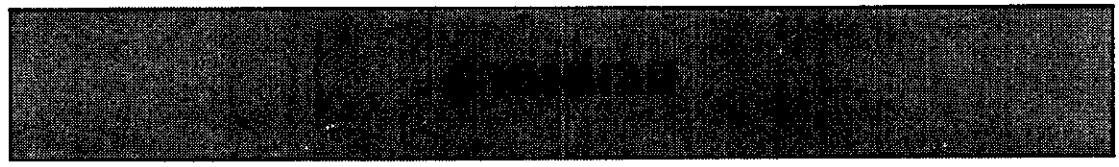

**Bessey' Dicta**

A. GENERAL DICTA

**1. Evolution is not always upwerd, but often it involve degradation and degeneration.**

*2. In general, homogenous structure (with many and similar part) are lower, and heterogenous structures (with fewer and dissimilar part) are higher.*

*3. Evolution does not necessarily involve all organs of the plant equally in any particular period, and one organ may be advancing while another is retrograding.*

4. Upwerd development is sometimes through an increase incomplexity, and sometime by a simplification of an organ or a set of organ.

5. Evolution has generally been consistent, and when a particular progression or retrogression has set it is persisted in to the end of the phylum.

6. In any phylum the holophytic (chlorophyll-green) plant precede the colorless (heterophytic) plant, and the latter arederived from the former.

7. Plant relationships are up and down the genetic line, andmust constitute the framework of phylogenetic taxonomy.

B. DICTA HAVING SPECIAL REFERENCE TO THE GENERAL STRUCTURE OF THE FLOWERING PLANTS

8. The stem structure with collatetal vascular bundles arranged in a cylinder is more primitive than that with scattered bundles, and the latter are to be regarded as derived from the former.

9. Woody stems (as of tree) are more primitive than herbaceous stem, and herbs are held to have been derived from trees.

10. The simple, unbranched stem is earlier type, from which branching stems have been derived.

11. Historically the arrangement of leaves in pairs on the stem is held to have preceded the spiral arrangement in which the leaves are solitary at the nods.

12. Historically simple leaves preceded branched (compound) leaves.

13. Historically leaves were first persistent (evergreen) and later deciduous.

14. The reticulated venation of leaves is the normal structure, and the parallel venation of some leaves is a special modification derived from it.

C. DICTA HAVING REFERENCE TO THE FLOWERS OF FLOWERING PLANTS

15. The polymerous flower structure precedes, and the oligomerous structure follows from it, and this is accompanied by a progressive sterilization of sporophylls.

16. Petaly is the normal perianth structure, and apetaly is the result of perianth reduction (aphanisis).

17. The apochlamydeous perianth is earlier and the gamochlamydeous perianth is derived from it by symphysis of the members of perianth whorls.

18. Actinomorphy is and earlier structure than zygomorphy, and the later results from a change from similar to a dissimilar growth of the members of the perianth whorls.

19. Hypogyny is the more primitive structure, and from it epigyny was derived later.

20. Apocarpy is the primitive structure, and from it syncarpy was derived later.

21. Polycarpy is the earlier condition, and oligocarpy was derived later.

22. The endospermous seed is primitive and lower, while the seed without endosperm is derived and higher.

23. Consequently, the seed with a small embryo (in endosperm) is more primitive than the seed with a large embryo (in scanty or no endosperm).

24. In earlier (primitive) flowers there are many stamens (polystemonous) while in later flowers there are fewer stamens (oligostemonous).

25. The stamens of primitive flowers are separate (apostemonous), while those of derived flowers are often united (synstemonous).

26. The condition of powdery pollen is more primitive than that with coherent or massed pollen.

27. Flowers with both stamens and carpels (monoclinous) precede those in which these occur on separate flowers (diclinous).

28. In diclinous plants the monoecious condition is the earlier, and the dioecious later.

**Hutchinson' Dicta**

1. Evolution is both upwards and downwards, the former tending towards preservation... and the latter to their recuction and suppression (of characters).

2. Evolution dose not necessarily involve all organs at the same time;...

3. Broadly speaking, tree and shrubs are more primitive than herbs in any one family or genus.

4. Tree and shrubs are older than climbers in any one family or genus.

5. Perennial are older than biennials and annuals;...

6. Aqautics flowering plants are derived from terrestrial ancestors,and epiphytes, saprophytes and parasites are more recent than plants of normal habits.

7. Dicotyledons are more primitive than monocot.

8. Spiral arrangement is more primitive than cyclic.

9. Simple leaves are usually more primitive than compound leaves.

10. Unisexual flowers are more advanced than bisexual; dioecious plants are more recent than monoecious.

11. The solitary flower is more primitive than the inflorescence.

12. Aestivation types are evoled from controted to imbricate to valvate.

13. Apetalous flowers are derived from petaliferous flowers.

14. Polypetaly is more primitive than gamopetaly.

15. Actinomorphy is more primitive than zygomorphy.

16. Hypogyny is usually more primitive than perigyny and epigyny and epigyny is the most advanced.

17. Apocarpy is more primitive than syncarpy.

18. A gynoecium of many pistils preceded one of few pistils.

19. Seeds whit endosperm and small embryo are older than seed whitout endosperm and a large;...

20. Numerous stamens, in general, indicate greater primitiveness than dose an androecium of a few stamens (exeption, Malvaceae).

21. Separate anthers, in general, indicate greater primitiveness than does an andoecium of either fused anthers or filaments.

22. Aggregate fuits are more highly evoled than singli fruit; as a rule the capsule precedes the berry or drupe.