

CLASSIC INVENTIONS:

Of the Seed as Vegetating *Botany*

THE ANATOMY OF VEGETABLES BEGUN. With a General Account of Vegetation Founded thereon. By Nehemiah Grew, M. D., and Fellow of the Royal Society. London, 1672.

One of the first experiments performed by young botanists of the present day (usually in the kindergarten years) is this of Grew's watching the growth of the "great Garden-Bean" as it pushes up its two "Dissimilar Leaves". Because he was one of the pioneers of botany, much of Grew's work has been superseded, but his advice is today as good as ever: "Those that shall think fit to examine, as well as to peruse these Observations, we advertise them, First, That they begin, and so proceed till they end again, with the Seed: For they will hardly be able to avoid Error and Misapprehension, if either partial or preposterous in their Enquiries. Next, That they confine not their Enquiries to one time of the Year; but to make them in several Seasons, wherein the Parts of a Vegetable may be seen in their several Estates. And then, That they neglect not the comparative Anatomy; for as some things are better seen in one estate, so in one Vegetable, than another."

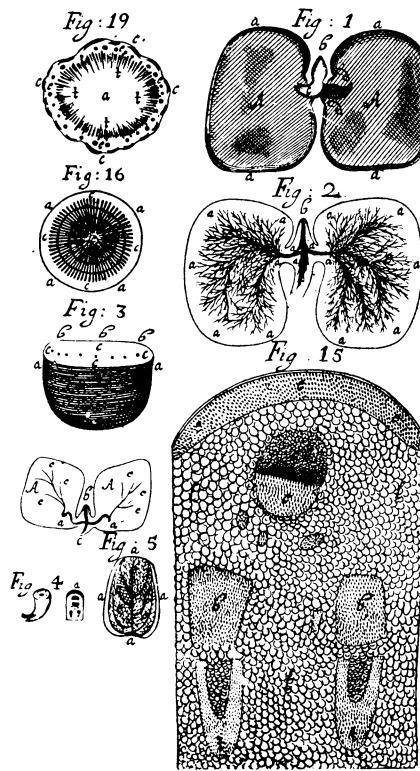
The Garden-Bean Dissected

Being to speak of Vegetables; and, as far as Inspection and consequent Reason may conduct, to enquire into the visible Constitutions and Uses of their several Parts; I chuse that Method which may with best advantage suit to what we have to say hereon: And that is the Method of Nature her self, in her continued Series of Vegetations, proceeding from the Seed sown, to the formation of the Root, Trunk, Branch, Leaf, Flower, Fruit, and last of all, of the Seed also to be sown again; all which we shall in the same order particularly speak of.

The Essential Constitutions of the said Parts are in all Vegetables the same: But for Observation, some are more convenient; in which I shall chiefly instance. And first of all, for the Seed we chuse the great Garden-Bean.

If we take a Bean then and dissect it, we shall find it cloathed with a double Vest or Coat: These Coats, while the Bean is yet green, are separable, and easily distinguished. When 'tis dry, they cleave so closely together, that the Eye, not before instructed, will judge them but one; the inner Coat likewise (which is of the most rare contexture) so far shrinking up, as to seem only the roughness of the outer, somewhat resembling Wafers under *Maquaroons*.

At the thicker end of the Bean, in the outer Coat, a very small *Foramen* presents it self: In dissection 'tis found to terminate against the point of that part which I call the *Radicle*, whereof I shall presently speak. It is of that capacity as to admit a small Virginal Wyer, and is most conspicuous in a green Bean. . . .



The Radicle Distinguish'd

This part is not only in the Bean, and the Seeds above mentioned; but in all others: being that which upon the Vegetation of the Seed, becomes the Root of the Plant; which therefore I call the *Radicle*: by which, I mean the Materials, abating the Formality, of a Root. 'Tis not easie to be observed, saving in some few Seeds, amongst which, that of the Bean is the most fair and ample of all I have seen; but that of some other Seeds, is, in proportion, greater; as of *Fœnugreek*, which is almost as big as one of its Lobes.

The lesser of the two said Appendents lies occult between the two Lobes of the Bean, by separation whereof only it is to be seen. 'Tis enclos'd in two small Cavities form'd in the Lobes for its reception. Its color comes near that of the *Radicle*; and is founded upon the Basis thereof, having a quite contrary production, *sc.* towards the cone of the Bean; and being that very part, which, in process, becomes the Body or Trunk of the Vegetable. See Fig. 1.

For the sake of this Part principally it is, that the Bean is divided into Lobes; *sc.* that it may be warmly and safely lodged up between them; and so secur'd from the Injuries so tender a part would sustain from the

Mould, whereto, had the Main Body been entire, it must have lain contiguous.

This Part is not, like the *Radicle*, an entire Body, but divided at its loose end into divers pieces, all very close set together, as Feathers in a Bunch; for which reason it may be called the *Plume*. They are so close, that only two or three of the outmost are at first seen: but upon a nice and curious separation of these, the more interior still may be discovered. Now as the *Plume* is that Part which becomes the Trunk of the Plant, so these pieces are so many true, and already formed, though not displayed, Leaves, intended for the said Trunk, and founded up in the same plicature, wherein, upon the sprouting of the Bean, they afterwards appear. In a French Bean, the two outmost are very fair and elegant. In the great Garden-Bean, two extraordinary small *Plumes*, often, if not always, stand one on either side the great one now describ'd: From which, in that they differ in nothing save in their size, I therefore only here just take notice of them. And these three Parts, *sc.* the Main Body, (Turn to next page)

Thyroid and Goiter Danger

Physiology

The thyroid, that very important gland in the throat whose pathologic enlargement we recognize as goiter, is not proportionately larger in females than in males, although a popular impression to that effect has long prevailed. Careful measurements of the thyroids of hundreds of ringdoves and pigeons has shown the contrary, Dr. Oscar Riddle of the Carnegie Institution of Washington reported to members of the Thirtieth International Physiological Congress.

There is a hereditary difference in thyroid size, some strains of birds showing consistently larger glands generation after generation. There is also considerable variability in thyroid size in any given strain, but the variability is much greater in strains with large thyroids than in those with small. In general, the tendency to develop abnormal thyroid size, known in humans as goiter, is more marked in females than in males. This agrees with the condition found in the human species, for women are afflicted with goiter more often than men are.

Science News-Letter, August 24, 1929