

ORIGIN OF THE VASCULUM

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In connection with D. E. Allen's interesting note on the evolution and naming of the botanist's *vasculum* (*Proc. B.S.B.I.*, 2, 324, July 1957), I should like to offer some observations and comments.

Firstly, there are extant at least two references to the term made prior to 1844, the date which is given in the *Oxford Dictionaries* for the first known use of the word (in the *Proceedings of the Berwickshire Naturalists' Club*). Thus, in the manuscript *Antarctic Journal* kept by (Sir) Joseph Dalton Hooker, which is now preserved in the Library of the Royal Botanic Gardens, Kew, Hooker wrote (pp. 1-2) "As botanist [on H.M.S. Erebus] my outfit from Government consisted of about 25 reams of paper, of three kinds, Blotting, Cartridge and Brown, also two Botanizing vascula and two of Mr. Ward's invaluable cases . . ." From the unqualified manner in which the term is used here, it would seem that it was already well-established and understood when the words were written in July 1839.

This circumstance prompted me to make an inspection of available literature. Two revealing illustrations were found to be reproduced in John Gilmour's *British Botanists* (London, 1944). The first is from an engraved frontispiece to William Curtis' *Flora Londinensis*, published in 1775. Here one of a trio of presumable botanists is placing a plant in a container which has a shape rather like that of an angler's fish-hamper. By contrast, an illustration taken from the Rev. C. A. Johns' *A Week at the Lizard* shows that author "in difficulties while botanizing near Kynance Cove in 1831" where he is wearing what appears to be a vasculum of thoroughly familiar shape. This suggests that we should look to the beginning of the nineteenth century for the advent of the vasculum as we now know it.

This hypothesis is supported most elegantly by a perusal of the works which stand in the name of William Withering of Birmingham (who died in 1799). His initial edition of the *Systematic Arrangement of British Plants* (then called *A Botanical Arrangement of all the Vegetables Naturally growing in Great Britain*) (London, 1776) contains "directions for drying and preserving specimens of plants" which include the suggestion that the plants should be carried home "in a tin box nine inches

long, four inches and a half wide; and one inch and a half deep. Get the box made of the thinnest tinned iron that can be procured; and let the lid open upon hinges." The accompanying glossary does not include the term *vasculum*. The third edition (published in 1796) and the sixth (published in 1818) have also been available to me but show no change in these respects except that the instruction is now given that "The box should be painted, or lacquered, to prevent it rusting."

The seventh edition (dated 1830), however, contains extensive revisions of the text by the editor (who was also a William Withering, the son of the original author). On page 24 we may read "Carry them home in a tin box, (*vasculum*)" The glossary (now called a "Dictionary of Botanical Terms") includes a definition which was also added by the editor. It reads "(VASCULUM; a lacquered or painted tin box, the size of an octavo volume, or larger, calculated to preserve plants in a state of freshness for many days, by confining their exhausting evaporation. A gentle sprinkling of water will also promote their revival in the box. E.)" Subsequent works based on Withering's original book deal similarly with the matter.

Mr. Allen refers, in his note, to the illustration, in 1851, by Professor J. H. Balfour (in the second edition of the *Encyclopaedia Metropolitana*) of a *vasculum*, commenting on its resemblance to the present-day article. An earlier illustration by the same author, however, is to be found on p. 616 of his *Manual of Botany* (London, 1849). In the preface to this textbook, Professor Balfour wrote "The Publishers placed at the Author's disposal, the wood-cuts of Jussieu's Cours Élémentaire, and some from Beudant's Geology; and, in addition to these, there are others taken from Raspail, St. Hilaire, Schleiden, Amici and Maout." A search of these sources, however, has revealed nothing. Consequently, the illustration must be presumed to be original. Certainly Professor Balfour was famous for his advocacy of field botany.

Professor Balfour gave details as to the construction and most appropriate size of such a "japanned tin box or *Vasculum*". The only difference from conventional present-day *vascula* consists in the suggestion that "At one end, a good sized thickish handle should be placed". By this remark and the implication of another made later it seems that, when using the handle, Professor Balfour carried his *vasculum* in a vertical position. Unfortunately no handles are shown in the woodcut.

A comparison with the situation in the United States is interesting. Here, where the contemporary *vasculum* resembles its British counterpart rather than the cylindrical Continental model, the writings of Asa Gray have passed through at least as many editions as those of England's Mr. Withering. Professor

Gray, however, with a true nineteenth-century American resistance to affected sophistication eschews the *vasculum* and refers steadfastly to "a close tin box" or "a botanical box". In his *Lessons in Botany and Vegetable Physiology* (New York, 1873), he defines the *botanical box* as being "made of tin, in shape like a candle-box, only flatter, or the smaller sizes like an English sandwich case; . . ." Here, then, are two possible leads for those who would trace the phylogeny of the *vasculum* from a pre-existing, non-botanical ancestor.

The derivation of the term *vasculum* from the Latin, where the same word denotes a *small vessel*, is obvious and it is also worth drawing attention to the fact that vascular tissues derive their title from a similar source. Thus, it is logical enough, in these circumstances, for a transporting box to be named a *vasculum* but it is also noteworthy that the term has a long history in botany in an entirely different connection—denoting a pitcher-shaped leaf such as is found in the insectivorous genus *Nepenthes*. In this usage it is synonymous with an *ascidium*.

It is possibly the increasing use during the nineteenth century of *vasculum* as a name for a collecting and transporting box which led to a decline in its use for the pitcher-like leaves. Thus, John Lindley and Thomas Moore (*A Treasury of Botany*, London, 1866) defined a *vasculum* as "A pitcher-shaped leaf. Also a case in which botanists place their freshly-gathered specimens, when on a journey". Here the emphasis is upon the leaf-modification. By 1916, B. D. Jackson (*A Glossary of Botanic Terms*, London) gave the following (which is repeated in virtually all present-day works of reference)—"Vasculum (1) = ASCIDIUM, (2) a collecting box for botanic specimens". The morphologist's *vasculum* has been reduced to synonymy; the field-botanist has won.