BOTANICAL LATIN

History, Grammar
Syntax, Terminology and Vocabulary

WILLIAM T. STEARN

NELSON

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Apologia pro Libro meo

'In all Ages wherein Learning hath Flourished, complaint hath been made of the Itch of Writing, and the multitude of worthless Books, wherein importunate Scriblers have pestered the World . . . I am sensible that this Tractate may likely incur the Censure of a superfluous Piece. . . . *First* therefore, in Excuse of it, I plead, That there are in it some Considerations new and untoucht by others: wherein if I be mistaken, I alledge *Secondly*, that manner of Delivery and Expression may be more suitable to some Mens Apprehension, and facile to their Understandings. If that will not hold, I pretend *Thirdly*, That all the Particulars contained in this Book, cannot be found in any one Piece known to me, but ly scattered and dispersed in many, and so this may serve to relieve those Fastidious Readers, that are not willing to take the Pains to search them out: and possibly, there may be some whose Ability (whatever their Industry might be) will not serve them to purchase, nor their opportunity to borrow, those Books, who yet may spare Money enough to buy so inconsiderable a Trifle.'

Thus begins John Ray's preface to his *The Wisdom of God manifested in the Works of Creation* (1691). These words of a seventeenth-century naturalist and scholar, who wrote extensively in Latin for international convenience but who also compiled a handy *Dictionariolum trilingue* (1675; 8th ed., 1736) of English, Latin and Greek terms for the help of schoolboys, state aptly enough my justification of the present venture, but some account of its intent and origin may nevertheless be added if only to indicate both its sources and shortcomings.

This book aims to provide a working guide to the special kind of Latin internationally used by botanists for the description and naming of plants. Although primarily concerned with grammar, syntax and vocabulary, it attempts also to sketch the historical development of botanical Latin, which is here accepted as a channel of communication now so distinct from classical Latin in spirit and structure as to require independent treatment. Chapter II develops further the theme of the autonomy of botanical Latin. Hence, as Vivian Mercier says of his *The Irish Comic Tradition*, 'this book makes no claim to be the last word on its subject: it is much closer to being the first one'. The realm of literature which a knowledge of botanical Latin opens to botanists is a strange barbarous place for classicists; invited into it

as an interpreter, a good classical scholar may well feel like Alice meeting Humpty Dumpty through the looking-glass; he must have local help in order to find his way without misunderstanding of its long-established rules and customs. Such help the present book tries to give. The need for it became painfully apparent to me many years ago.

About 1930, when I was working in a Cambridge bookshop, an Indian student, now a very distinguished economic botanist, asked me to translate into Latin some descriptions of new Burmese species of Charophyta because no scholars in Cambridge would do it for him. In this, I have subsequently concluded, they wisely recognized their limitations. But such prudence was of no help at all to my friend, whose paper had been accepted for publication by a learned society only on condition that he provided Latin descriptions in accordance with the *International Rules of botanical Nomenclature*. Hence, reluctantly and laboriously, without having available any descriptions in Latin of these plants to serve as models and my memories of Virgil's *Aeneid* and Caesar's *Gallic War* proving quite useless, I rendered these imperfectly understood descriptions of plants I had never seen into a Latin which John Lindley would have justly described as written 'without the incumbrance of previous education' and about which A. B. Rendle gently wrote that 'the Latin descriptions are merely literal translations, sometimes faulty, of the English descriptions'. However, bad though they were, they enabled my friend's otherwise excellent work to be published; my one regret is that he acknowledged their origin! It should be noted that, when a botanical author thanks a professor of classics for providing a Latin description, this is usually in bad or at any rate unconventional botanical Latin; thus I have since then found myself erring in very respectable company. This teenage experience convinced me that someone, but not I, ought to produce a textbook for the guidance of the likes of me.

During the Second World War, however, when I had to sit for hour after hour, day after day, staring at the sky from a Royal Air Force ambulance awaiting planes which, fortunately, rarely crashed, I filled in time by extracting the descriptive epithets from a series of Floras lent me by the Lindley Library of the Royal Horticultural Society of London in the hope of producing some day an etymological dictionary of botanical names. I did not know that there already existed such a book, *Verklarend Woordenboek der wetenschappelijke Namen* (1936) by Cornelis Andries Backer (1874–1963). When, long after the war, I came across this massive 'boekje', undoubtedly the most comprehensive, reliable and scholarly work of its kind, it seemed foolish to continue with the preparation of one which would largely duplicate it,

so I decided to expand the grammatical and general chapters of mine, to limit the vocabulary to words used in descriptions and the basic elements of names, and to make it primarily a tool for taxonomists, a 'do-it-yourself' Latin kit. Thus the present work has grown out of war-time notebooks. Its preparation has necessarily been a much interrupted desultory business restricted to occasional evenings, week-ends and days of leave over the last twenty years. My procedure has been to take Latin descriptions by reputable botanical authors, extract the words used, arrange them alphabetically and then correlate them with standard glossaries, notably those by Bischoff, Lindley and Daydon Jackson, and thus to build up a vocabulary based primarily on usage and providing examples more or less ready for use. These examples come from a wide range of botanical literature. As regards the flowering-plants, probably Endlicher's *Genera Plantarum* (1836–50), Bentham and Hooker's *Genera Plantarum* (1863–83) and Urban's *Symbolae Antillanae* (1898–1928) have provided most. Many of those relating to non-vascular cryptogams have come from Montagne's *Sylloge Generum Specierumque Cryptogamarum* (1856), supplemented with a diversity of descriptions by later authors. Dr. G. C. Ainsworth, Mrs. F. L. Balfour-Browne, Mrs. Y. Butler, Mr. E. J. H. Corner, Mr. F. C. Deighton, Mr. A. Eddy, Mr. P. W. James and Mr. R. Ross kindly directed me to good representative descriptions in their respective fields of bryology, lichenology, mycology and phycology.

The name of John Lindley (1799–1865) occurs many times in this book. As a young man I became familiar with the Lindley Herbarium at the Botany School, Cambridge, curiously enough at about the same age as Lindley was when he became assistant librarian to Sir Joseph Banks and acquainted with the Banksian Herbarium. Later, as librarian of the Lindley Library of the Royal Horticultural Society of London, which Lindley also served for many years, I came to know his numerous publications and to admire the industry, tenacity and ability with which he undertook successfully so many different things. In writing this book I have been particularly impressed by the great contribution that Lindley made to exactness and clarity of terminology, notably in his *Introduction to Botany* and *Elements of Botany*, which represent, however, but small parts of his activity, and, like Daydon Jackson and other makers of glossaries, I have taken his work as a foundation. Lindley's books were written vigorously and with good sense, drawing upon extensive reading and experience, and they still repay consultation. In the year of his centenary I am happy indeed to take this opportunity of expressing gratitude both for the example of his life and for his achievements.

The tedious and time-consuming task of sorting thousands of slips

into alphabetical sequence, thus bringing together divergent uses of the same word, was greatly lightened by the help of my wife and my son. For much scholarly criticism and advice I am indebted to Mr. J. E. Dandy, the late Mr. N. Y. Sandwith and the late Mr. A. C. Townsend. My greatest debt is, however, to Dr. Hannah Croasdale of Dartmouth College, New Hampshire, U.S.A., who has for many years helped her fellow-workers in phycology to write their Latin descriptions and has made an extensive collection of useful expressions and phrases particularly relating to Algae. These notes, which she generously placed at my disposal, have called my attention to omissions from my vocabulary, suggested additional cross-references, and provided a check on information from other sources.

None of these kind helpers and encouragers is, of course, to be held responsible for the deficiencies of this book, which its unavoidably protracted and intermittent preparation may help to explain though not to excuse. As John Gerard wrote in the preface of his herbal of 1597, 'accept this at my hands (loving countriemen) as a token of my good will, trusting that the best and well minded will not rashly condemne me, although some thing have passed woorthie reprehension.'

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PART ONE

INTRODUCTORY

CHAPTER I

How to Use this Book

Botanical Latin is an international language used by botanists the world over for the naming and description of plants. Its use is obligatory only in descriptions of plants considered new to science, but little research can be done in systematic botany without recourse to earlier literature written in botanical Latin. Increasing scientific need during the past 250 years for precision and economy in words has made it distinct from classical Latin and it should be treated as such. The present book aims to supply a guide to its grammar, its standard procedures and peculiarities and its basic vocabulary, using examples taken from a wide range of botanical literature, in order that persons ignorant of classical Latin may nevertheless be able to extract the meaning from descriptions in botanical Latin and, if need be, draw up simple, clear and intelligible descriptions of their own. Part I is introductory; Part II deals primarily with grammar; Part III with syntax; Part IV with vocabulary.

The reader having no knowledge of classical Latin must first of all become acquainted with the PARTS OF SPEECH detailed in Chapters V-XII and the concepts of GENDER, NUMBER and CASE (see pp. 59, 60). Examples of these are provided in the sentence *Haec species pulchra crescit maxime in pratis et locis graminosis inter frutices humiles* (This beautiful species grows especially in meadows and grassy places among low shrubs). Here the words *species* (species), *pratis* (meadows), *locis* (places) and *frutices* (shrubs) are NOUNS (see Chapter V), *haec* (this) a PRONOUN (see Chapter IX), *maxime* (especially, most of all) an ADVERB (see Chapter VII), *in* (in, on) and *inter* (between, among) PREPOSITIONS (see Chapter X), *et* (and) a CONJUNCTION (see Chapter XI), *pulchra* (beautiful), *graminosis* (very grassy) and *humiles* (low) ADJECTIVES (see Chapter VI). The endings of most of these words change according to the meaning intended; such words are said to be *inflected.* The nouns may be masculine, feminine or neuter in *gender* and this, together with their *number* (whether singular or plural) and *case* (whether nominative, accusative, etc.), controls their endings and the endings of their adjectives associated with them. Thus the word *species* used above is of feminine gender, singular number (since only one species is

mentioned here) and nominative case; the adjective *pulchra* associated with it is likewise of feminine gender (hence not masculine *pulcher* or neuter *pulchrum*), singular number and nominative case. The nouns *pratis* and *locis* are of plural number and ablative case, their nominative singular forms being respectively *pratum*, which is neuter, and *locus*, which is masculine. *Frutices* is here the accusative plural form of *frutex*, which is masculine; the associated adjective *humiles* (of which the masculine nominative singular is *humilis*) agrees with *frutices* in gender, number and case. *Crescit* (it grows) is a VERB (see Chapter XII) agreeing in number with *species*. This example will serve to indicate the complexities of a highly inflected language such as Latin, complexities which, however, lead to clarity.

The VOCABULARY (see Chapter XXV) of botanical Latin is very rich, and a knowledge of it can only be acquired through experience. A useful exercise is to take some descriptions and diagnoses by the botanists mentioned in Chapter II and translate them into English, then later, by use of the Vocabulary, translate them back into Latin. It will be noticed that in a diagnosis such as *pileo 2 cm. lato glabro viridi, stipite 10 cm. longo fistuloso maculis albis conspero, lamellis viridibus liberis, sporis fusiformibus laevibus* (with the pileus 2 cm. broad glabrous green, the stipe 10 cm. long fistular with white spots sprinkled, the lamellae green free, the spores fusiform smooth) many of the words end in *-o*, *-is* and *-ibus*; these indicate that it is written in the ablative case. Words, however, are listed in dictionaries and glossaries under their nominative form, e.g. under *pileus* (not *pileo*), *latus* (not *lato*), *glaber* (not *glabro*), *viridis* (not *viridi*), *stipes* (not *stipite*), *lamella* (not *lamellis*). The part of the word to which such case-endings are attached is known as its *stem* (see p. 60), e.g. the stem of *pileus* (nominative) and *pileo* (ablative) is *pile-*. Since words with the ablative singular ending, for example, in *-e* and the ablative plural in *-ibus* may have the nominative singular ending in *-en* (e.g. *lichen*), *-er* (e.g. *elater*), *-o* (e.g. *sectio*), *-or* (e.g. *odor*), etc., it is impossible to deduce the nominative singular from the ablative. Hence a given word should be sought in the Vocabulary by its stem rather than by the whole word when not in the nominative case.

Nouns are classified into five main groups or *declensions*, each with a distinctive set of case-endings. The Roman numeral I, II, III, IV or V indicates the declension to which a given noun belongs, the letter *m* (masculine), *f* (feminine) or *n* (neuter) its gender. By reference to Chapter V the correct form to express a particular meaning can easily be found. Adjectives are classified into two main groups indicated by the letters A and B in the Vocabulary. If a particular adjective is to go with, say, a feminine noun of plural number and

ablative case, then the feminine plural ablative form of that adjective should be ascertained by reference to Chapter VI. The Vocabulary provides many phrases ready-made which can be adopted or adapted.

A reader intending to describe a plant in Latin should turn to Chapter XIII for examples of DIAGNOSES setting out briefly distinguishing features, to XIV for examples of DESCRIPTIONS stating characters in general, to XV for notes on PUNCTUATION, to XVI for information about HABITATS. In consulting the older literature to check that the plant has not been described and named already, he may find type-localities and distribution there stated in Latin or Latinized GEOGRAPHICAL NAMES, for which see Chapter XVII.

To provide a new plant with an apt name not already used becomes more and more difficult as more and more names are published. WORDS OF GREEK ORIGIN are just as likely as Latin ones to be pre-occupied. For their formation see Chapters XIX and XX. If these and the Vocabulary do not provide enough material, Roland Wilbur Brown's *Composition of scientific Words* (1956) should be consulted for suggestions, together with Oscar E. Nybakken's *Greek and Latin in scientific Terminology* (1960); in any event, checking with Liddell and Scott's monumental *A Greek-English Lexicon* (new ed. 1940) is advised; for this an acquaintance with the Greek alphabet (see p. 261) is essential. Dictionaries of foreign equivalents should always be used both ways, as a word in one language often has a different range of meaning from a more or less equivalent word in another.

The VOCABULARY (Chapter XXV) of this book is essentially one of botanical Latin and English equivalents and only incidentally explains their meaning and application; this, however, is the function of Chapter XXII, which provides basic Latin-English DESCRIPTIVE TERMINOLOGY taken from Lindley, and of such works as G. W. Bischoff's *Wörterbuch der beschreibenden Botanik* (2nd ed., 1857), J. Lindley's *The Elements of Botany* (1849), A. Gray's *The Botanical Text-Book* (6th ed., Part I, 1879), B. D. Jackson's *A Glossary of botanic Terms* (4th ed., 1928), W. H. Snell and E. A. Dick's *A Glossary of Mycology* (1957), and the glossaries accompanying many Floras. Moreover it does not set out to state the meanings of specific epithets, although many are incidentally included. For these G. F. Zimmer, *A Popular Dictionary of botanical Names and Terms* (1912), C. A. Backer, *Verklarend Woordenboek van wetenschappelijke Plantennamen* (1936) and H. Gilbert-Carter, *Glossary of the British Flora* (3rd ed., 1964), may be consulted.

CHAPTER II

Introduction

Sic enim potius loquamur: melius est reprehendant grammatici quam non intelligant populi [Thus we indeed preferably declare: it is better that the grammarians censure us than that the public does not understand us].

ST. AUGUSTINE OF HIPPO (A.D. 354–430)
Ennar. in Psalm. cxxxviii, 20

'Those who wish to remain ignorant of the Latin language, have no business with the study of Botany.' So wrote John Berkenhout in 1789. A letter to the *Cambridge Review* of 29 January 1960 by E. J. H. Corner gives its modern echo: 'We botanists keep Latin alive. We read it, write it, type it, speak it when mother tongues fail, and succeed in putting such remarkable things as orchid-flowers and microscopic fungi into universal understanding through Latin. If we didn't, the Babel of tongues and scripts would close our accord, and we should be at the mercy of politics! We have, in fact, our international language; it is so far evolved that it is almost as different from classical Latin as modern from Chaucerian English.' Although all too little appreciated, the international importance of botanical Latin and its divergence from classical Latin have indeed often been noted. 'Le latin des botanistes n'est pas cette langue obscure et à réticences de Tacite, obscure et à périodes pompeuses de Cicéron, obscure et à graces tortillées d'Horace', wrote Alphonse de Candolle in 1880, 'Ce n'est pas même la langue plus sobre et plus claire d'un naturaliste, tel que Pline. C'est le latin arrangé par Linné à l'usage des descriptions et, j'oserai dire, à l'usage de ceux qui n'aiment ni les complications grammaticales, ni les phrases disposées sens dessus dessous.' To learn it, said this distinguished Swiss botanist, was the work of a month for an Italian, two months for a Frenchman, three for an Englishman, four months for a German or Swede not already familiar with a language of Latin origin. Once acquired it is a valuable working tool, opening stores of taxonomic information not otherwise available.

Botanical Latin is best described as a modern Romance language of special technical application, derived from Renaissance Latin with much plundering of ancient Greek, which has evolved, mainly since

1700 and primarily through the work of Carl Linnaeus (1707–78), to serve as an international medium for the scientific naming of plants in all their vast numbers and manifold diversity. These include many thousands of plants unknown to the Greeks and Romans of classical times and for which names have had to be provided as a means of reference. Their description necessitates the recording of structures often much too small for comprehension by the naked eye, hence unknown to the ancients and needing words with precise restricted applications foreign to classical Latin. The use of a modified form of Latin for purposes so remote from classical literature is a consequence of the survival of Latin as a general-purpose language, used in academic, diplomatic, ecclesiastical and legal affairs and even domestic correspondence, long past the crucial period of the sixteenth century when herbalists became aware of the many hitherto unnoticed and unnamed plants around them. They wrote in Latin about these plants because they wrote in Latin about almost everything else. Latin, admittedly derived from the medieval Latin, was then the ordinary generally understood language of educated men. Such indeed it remained all through the eighteenth century. It served not only for international communication, as between Linnaeus and his foreign correspondents, and between Albrecht von Haller (1708–77) and his foreign correspondents, but also for private correspondence between scholars of the same language, possibly because few women then could read Latin. Thus Haller and his friend Johannes Gessner (1709–90), although both German-speaking Swiss, conducted their extensive life-long correspondence in Latin. Study of Latin then began early and led to great fluency in later life. Elias Magnus Fries (1794–1878), the 'founder of modern systematic mycology', tells a little about his own education [1] in his *Historiola Studii mei mycologii* (1857). At the age of twelve when gathering strawberries in a wood he found an unusually large specimen of a fungus (*Hydnum coralloides*), which induced him to begin the study of fungi. He tried to ascertain its name with the aid of Liljeblad's *Utkast til en Svensk Flora* (1792 and 1798), but was soon tripped up by an unknown word *lamella*. 'Shortly afterwards, when out walking with my father, I asked: *Dic, Pater, quid est lamella?* (with my father I was allowed to talk only in Latin, whereby I learned Latin before Swedish). *Lamella*, he replied, *est lamina tenuis*, which explanation given made this term for the fructification of agarics seem particularly apt. . . . Two men especially lit up and fostered my

[1] The Latin education of Nils Retzius (1712–57) was rather similar to that of Fries; according to Linnaeus, *Skånska Resa*, 92 (1751), entry of 23 May 1749, when Retzius was about seven or eight years old his tutor spent a year teaching him a Latin vocabulary and then for the next two years allowed him to speak nothing but Latin; thereafter he read Latin authors and conversed in Latin with ease.