TWO

THE LANGUAGE OF BOTANY

The beginnings of botany

In the past people delighted in simpler pleasures, as we can see from the following quotation from an English literary journal of the mid-eighteenth century:

> Perhaps there is no study so delightful as botany. It traces nature through one of the most gay, sportive and fanciful branches of creation. It is attended with the utmost gratification to the senses. . . .

This represents, of course, only one aspect of botany. It reflects superficial pleasure, but neglects the serious business of making sense of the diversity of the vegetable kingdom and reducing it to some sort of order. The science of botany needs some classification together with a rational nomenclature. But we should start the history of botany at the beginning.

The Greek Theophrastus (4th century B.C.) is usually regarded as the founder of botany, with his two works: *Enquiry into Plants* and *The Causes of Plants*. In the former there is some discussion of classification. He divided plants into four categories: trees, shrubs, under-shrubs and herbs. Altogether he mentioned over 500 plants. In naming them, the terms he used were often borrowed from analogous parts in animals.

The study of botany was in many ways advanced by the general and ancient practice of using herbs to treat human ailments. This meant that, when universities were developed in the Renaissance period, a chair of botany would often be found in the Faculty of Medicine. The oldest professorship of botany dates from 1533 at the University of Padua. The professor of botany would naturally want to grow herbs and this led to the foundation of university botanical gardens (Padua, 1542). But botanical gardens would not be confined to universities. The *Jardin des Plantes* in Paris dates from 1635, the Chelsea Physic Garden was founded in 1673, and Kew Gardens in 1759.

There were, of course, gardens in antiquity. Indeed the story of Adam and Eve began in a garden. In European history the monastic garden holds a special place. The monks would often grow fruit and vegetables. Sometimes the apples from an orchard would be used to make cider. However, the most common feature was the herb garden. When the monasteries were destroyed under Henry VIII the monastery gardens disappeared. Thereafter the

history of gardens in England continues in a secular context, often in great country houses, where display was paramount. In Italian Renaissance gardens too, like the *Villa d'Este* (1580s), design was everything, with terraces and many ornate fountains. If the gardens of Versailles were primarily an exercise in applied geometry, the English gardens of the eighteenth century saw a return to nature, with care attached to landscape and the planting of trees. In modern times domestic gardens have multiplied and gardening has become an extremely popular hobby.

Herbals

Herbals provide descriptions of plants directed towards their medicinal use. Utilitarian botany had the disadvantage from the point of view of science of concentrating on individual plants without considering how they related to other plants. Therefore, while herbals constitute an important area in the history of the study of plants, it has to be admitted that there was hardly any consideration of the classification of plants in this tradition. If herbs were arranged at all in a book, it tended to be according to the qualities that made them useful for medicine. Only in the seventeenth century did some of the herbalists take a broader view.

One of the earliest herbals was that of Dioscorides, a Greek author, whose original manuscripts have not survived. Fortunately there was a Latin translation under the title *De materia medica* (c. 77 A.D.), which contains the names and

healing virtues of some 500 plants. Only summary descriptions of the plants were included but crude illustrations were added to later editions.

The invention of printing, which gave a great boost to learning generally, permitted herbals to pass on from the rare manuscript to a more affordable book. The first printed scientific book was Pliny's *Natural History (*1469). By 1478 a printed edition of Dioscorides was available. This work was regarded as a great authority even as late as the seventeenth century, by which time there were many competing authors. The tradition of accepting ancient authority uncritically was an unfortunate feature of early science, but the respect in which Dioscorides had been held in the Middle Ages had at least ensured the preservation of manuscript copies of his work. In the early years of printing there were also a few other herbals derived from classical or Arabic authors. They usually carried illustrations but the woodcuts were often no more than diagrammatic.

In the *Herbal of Apulius* (Rome, 1481) twenty-four different names were assigned to Verbena. Externally it was said to cure ulcers, swellings, and both dog and snake bites. Internally it cured liver complaints and removed kidney stones. An early English work, *The grete herball* of 1526, claimed to give the 'vertues in all manner of herbes to cure and heale all manner of sikenesses or infyrmytes'. Although medieval in character, the herbal does contain a few remedies recognisable in modern times, including liquorice for coughs, opium as a narcotic and olive oil for scalds.

The Latin herbal (1530) of the German, Otto Brunfels marked a distinct advance by virtue of its illustrations. Instead of representing plants in a conventional way, with each author copying the illustrations of his predecessors without reference to nature, the plants were represented here in a realistic way.

It could be argued that the definitive naming of plants in this context was less necessary than their identification by illustration. Yet names were still important in herbals since a patient could be poisoned rather than cured by a mistake in plant identification. In 1542 another German, Leonhardt Fuchs produced a Latin herbal, including some 400 native German plants and 100 foreign plants. It included a critical study of the plant names used by classical authors, something very useful in a time of confusion. Fuchs gave examples of errors in other herbals.

There now began a greater interest in foreign plants. The Frenchman Charles de l'Ecluse published in 1576 a description of plants he had observed on an expedition to the Iberian peninsula. Later he went to Austria and Hungary and not only described plants there but also various oriental plants that had reached Vienna from Constantinople. He was said to have added some 600 plants to the number known. Yet he was content simply to describe, without classifying, these new plants. For more distant parts of the world, from Mexico to India, important contributions were made by Spanish and Portuguese navigators.

By the seventeenth century the growing number of botanical names were in a state of great confusion

with a variety of names being given to the same plant by different authors and great differences of opinion on the identification of plants corresponding to names used by classical authors. Thus what Dioscorides called 'Nasturtium' was not the ornamental flower familiar today but a kind of cress. Gaspard Bauhin's *Pinax* of 1623, containing a concordance of the names of some 6,000 species, helped clarify the situation. It was very influential, and the great Swedish botanist Linnaeus annotated his copy extensively.

Among English botanists of the Renaissance period the name of William Turner is pre-eminent. His English *Herball* was published in three instalments over the period 1551-1568. It was arranged alphabetically, the author showing no interest in exploring the relationship between plants. Turner had originally planned to write a Latin herbal, being particularly proud of his knowledge of that language and hence his claim to be a great scholar. However, he had asked the advice of physicians and they had advised him before publishing to acquaint himself better with plants in different parts of England, notably the west country. His final choice of English for his great herbal seems to have been on grounds of nationalism, partly to celebrate the plants of which England alone could boast.

One of the best known of English herbalists was John Gerard, whose massive book, *The Herball or Generall Historie of Plants* was published in 1597. Although an impressive work, there were many mistakes in this first edition. Gerard's account of the

'Goose tree' and the 'Barnacle tree', which were supposed to give birth to barnacle geese, had brought derision from his critics. (Albertus Magnus had disproved that legend as early as the thirteenth century.) The 1633 edition of the herbal, revised by Thomas Johnson, using smaller print but still running to some 1,600 pages with nearly 3,000 woodcuts, was a distinct improvement on the earlier edition and a facsimile edition has been produced for the modern reader.

The 'Round-rooted Crowfoot' (Ranunculus bulbosus) *from Gerard's* Herbal *(1597)*

It would be natural to think of accurate illustrations of plants as a most desirable achievement. Yet excellent illustrations had the effect of discouraging verbal descriptions, since it was difficult to express in a few words every subtle detail of a plant. When Jerome Bock published the first edition (1539) of his herbal in German, he could not afford to pay for illustrations and, therefore, gave some attention to the inclusion of very full descriptions. Yet a full description, running to many lines of type, is very different from a name, and, if botanists were to be able to work together, every plant would eventually have to have a name upon which all botanists could agree.

Common names for plants

The common names for plants were perpetuated mainly in the oral tradition. The use of such names was reinforced in the popular herbals of Turner, Gerard and Culpeper, all in English. It is, therefore, worthwhile to look at some of these names, choosing mainly examples which are still in use today.

In a pre-industrial society most people lived close to the countryside and a majority made a living through agriculture. In an agricultural economy everyone was familiar with plant life, which they might use for food, fuel, medicine or decoration. Whereas animals might tend more frequently to have standard names within a language, there was much more variety in the names of plants in different parts of the country. Thus the Marsh-marigold or Kingcup had more than 80 local names in Britain (e.g. Marsh-blob, Horse-blob), about 60 in France and over 100 in German-speaking countries.

Plant names fall into several different categories. The easiest to explain and justify is the purely descriptive name. Thus we still speak today of blackberries, stinging nettles and perhaps pink sorrel. The snowdrop is an easily understandable name for a plant with white hanging flowers, often blooming through the snow. Then there are those that may not be so immediately obvious, but on reflection can be seen to allude to the colour of the flower and/or its shape, e.g. buttercup. The egg plant has fruit which swell to egg shape. The shepherd's purse has seed cases reminiscent of the pouch which shepherds

might have hung from their waists. Then there is Jack-by-the-hedge, a roadside hedge colonising plant, otherwise known as Garlic mustard, from its smell when the stem is broken. Few people who eat grapefruit for breakfast probably appreciate that the name comes from the fact that grapefruit grow in bunches like huge grapes.

There are also more imaginative names, sometimes even poetic, such as: Love-in-the-mist, Traveller's joy (Gerard) and Enchanter's nightshade. If there are also occasional curious names like Gallant soldier, the explanation is that this is a simplified vernacular version of the Latin *Galinsoga*, a weed which is in no way gallant or soldierly. There are also several plants with names depending on the time of year at which flowers appear. The most common example is Michaelmas daisy, which flowers in late September (Michaelmas day is 29 September). Saint John's wort is so called because it flowers around the time of the feast day of Saint John (24 June). The name Alleluia, which is still used in some parts of Britain for wood sorrel, was originally applied because it flowers around Easter time, when Alleluia is again heard in churches after the long period of Lent.

Although the origin of the name Dandelion is far from obvious, it comes from the French *dent de lion* (lion's tooth, *Lowenzahn* in German) from the shape of the leaf. The name Canterbury bells cannot be fully explained by the bell-shaped flowers. It has been suggested that the flowers resemble the shape of the badges worn by pilgrims to the tomb of Saint Thomas of Canterbury. In Europe before the Reformation many

plants were named after saints. In America the fact that many plants had names connected with the Devil or to witches, is related to a later Protestant tradition.

Several plants were named after animals. Usually this was to denote a less esteemed plant. Thus Cow parsley denotes an inferior parsley. Toad flax is a wild useless 'flax', fit only for toads. Dog rose is an inferior (wild) rose, and Horse-chestnut is a coarse chestnut. On the other hand Catmint is a name given to a plant with a strong scent and supposedly liked by cats.

In medieval times the natural world was seen as a puzzle or cryptogram full of hidden meanings available for human beings to decipher. According to the doctrine of signatures, the beneficent Creator had endowed plants with signs of their proper use by the human race. Thus herbs with yellow sap could be used to cure jaundice. Plants with flowers shaped like butterflies would cure insect bites (Porta, 1588). The apothecary and medical iconoclast Nicholas Culpeper went further in his Epistle to the reader in his celebrated *Herbal* (1652 and very many later editions):

> Hereby you may know which infinite knowledge Adam had in his innocence, that by looking upon a creation, he was able to *give it a name according to its nature*. [my italics]

This perspective attributes tremendous importance to names, particularly in so far as they were of ancient origin, which was true of a fair number. Thus the names of the rose, violet, fig, cypress, mint, hyacinth, ginger, lily and crocus are now known to go back to a very remote antiquity,

even before the Greeks and Romans. Culpeper was making popular botanical names not simply relevant but fundamental to understanding their medicinal properties. Thus the diuretic dandelion was popularly known as piss-a-bed (in French *pisse-en-lit).*

In the days before 'chemical' medicines, people depended on plants as medicines and this is reflected in many old names: Kidney vetch, Liverwort, Lungwort, Purging flax and Scurvy grass, all with names which indicated the part of the body or the disease each was supposed to cure. In the pioneer period in nineteenth-century America, when self-medication was common, much trust was placed in herbal remedies and many were given medicinal names, such as: bellyache root, bone set, fever twig and cramp bark. It would mark a great advance for scientific purposes when the names given to plants related to their structure rather than to their beauty, supposed medicinal properties or religious associations.

Latin names

Whereas most of the later herbals in the vernacular would use common names, the more scholarly botanical works continued to use Latin names, although there was little agreement about their choice. What is difficult to understand is how, in botany almost alone in modern times, Latin has become accepted for the naming of plants well beyond the sphere of the professional botanist.

In the present age there has been a move away from the few other areas where Latin was still used. In dealings with the law, clients until recently were intimidated by phrases used by professionals such as: *pro bono* or *res ipsa loquitur*. In *Gullivers Travels* Jonathan Swift wrote about lawyers who had 'a peculiar Cant and Jargon of their own, that no other Mortal can understand'. In modern times solicitors in England have been instructed to use only the English translations of these phrases of venerable ancestry.

Following a tradition dating back to the Roman Empire, the Roman Catholic Mass was said in Latin until the changes introduced by the Second Vatican Council in 1965. The use of the vernacular has now been substituted, which most people would regard as a positive step. Quite recently (October 2005) there have been reports of the difficulty experienced by many (possibly younger) participants at a synod in Rome in understanding the traditional universal language. When the British holiday maker attends church abroad, whether, say, in Italy, Spain or Croatia, he or she may well have some difficulty in following the service and may miss the universal character which Latin introduced in previous ages.

The serious modern gardener, who probably was never troubled at school with the declension of a Latin noun or the recitation of *amo, amas, amat*, has had to become accustomed to this foreign language for the identification of his or her plants. For the perfectionist there is also the grammatical problem of gender. Thus in the Linnaean system of

binomial names, the second (specific) name for a white flower may be *albus, alba, or album,* according to whether the preceding name of the genus is masculine, feminine or neuter. The polysyllabic Latin names of many plants may sometimes seem a mouthful, but the purchaser of a plant thus described has the satisfaction of knowing that there should be no mistake in being sold the wrong plant.

Before the time of Linnaeus confusion had been caused in commerce by the variety of names attached to the ever-increasing number of plants coming on to the market, which could lead to a seedsman being accused of fraud by a customer who used a different name. It would be very difficult indeed in the present century to introduce names in a dead language, but the Linnaean system has become so firmly established over many generations that it is now universally accepted. The international value of Latin might be best appreciated by a European or American travelling, say to China, and reading the bilingual label in a botanical garden.

Nicholas Culpeper aroused the wrath of the London College of Physicians when he published an unauthorised English translation of the *Pharmacopaeia Londinensis*, saying that its contents 'instead of being clothed in mystic garb (i.e. Latin), should be put upon a level with the plainest understanding'. There is a parallel in the sixteenth-century Reformation, when religious reformers had insisted on the importance of translating the Bible

into the various European vernaculars. Indeed all three traditional professions: Church, law and medicine had been 'guilty' of using Latin, which was sometimes seen as a conspiracy to distance the respective practitioners from the common people. Lawyers might extract higher fees from clients, clerics might better claim superiority over the laity, and the medical profession might have an interest in the mystification of their knowledge and remedies.

Against such conspiratorial theories lies the fact that all three professions were the product of universities, where, up to the eighteenth century, Latin was in common use. After all the only education recognised as such before the nineteenth century was a classical education based on Latin and, sometimes, Greek.

Yet in early modern Europe Latin was gradually being replaced for many purposes by the vernacular. In the sixteenth century there was Luther's German *New Testament* and Tyndale's English translation. In the seventeenth century part of the scandal caused by Galileo was due to the fact that he published his book on the Copernican system in Italian instead of Latin, which would have reduced the impact of his writing to discussions among scholars. In France the *Discours sur la méthode* (1637) of Descartes became an early classic in the French language and French gradually became the *lingua franca* of diplomacy and of the upper classes throughout Europe, replacing medieval and renaissance Latin.