EARLY MULTILINGUAL AND MULTIScript INDEXES IN HERBALS

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The earliest examples of indexes in more than one language and in several scripts are those found in herbals of the late 15th and early 16th century. The features of these indexes are analyzed, and the gradual development of name and subject indexes, their alphabetical arrangement by various methods, and finally the systematic display in several languages and scripts in the works of Conrad Gessner and Leonhart Fuchs are demonstrated by examples.

The early history of alphabetical subject indexes as found in medieval manuscripts, in incunabula, and in some historical, theological, and legal texts printed during the first part of the 16th century has been the subject of earlier studies (Knight 1968, Witty 1965, 1973). The investigators concluded that the art of indexing as exemplified by the works studied was not very highly developed before 1550: the alphabetical arrangement of entries rarely if ever extended beyond the second letter of the first word in an entry, and catchwords taken from the text or from marginal notes formed in most instances the points of access.

During that same period there appeared, however, a type of book, namely the herbals, which differed in several respects from most other early books: they were the earliest scientific books written partially or entirely in the vernacular; they reached a high level of excellence in their illustrations; and they contained extensive name and subject indexes, often in more than one language and sometimes even in more than one script.

The herbals were medico-botanical works, describing medicinal plants, their properties and healing powers, giving recipes for the preparation of remedies and drugs, and sometimes containing also descriptions of animals and minerals from which medications could be prepared. The earliest works of this kind were almost entirely based on the works of ancient writers on medicine, foremost among which were Aristotle, Dioscorides, Theophrastos, Galenos, and Pliny the Elder. These writers' original descriptions of plants and of diseases that could be treated by their extracts or application contain some of the earliest known examples of alphabetical arrangement (Daly 1967), and they were more or less faithfully transmitted in manuscripts throughout the Middle Ages and early Renaissance, by which time they had become classics, studied as much by the humanists for textual variants as by physicians and apothecaries for their intrinsic topics. Indeed, much of the training of physicians during the late Middle Ages and until the early 16th century consisted of comparative studies of the ancient texts and the (often fanciful) identification of northern and central European plants with those described by the ancient authors. It was then not realized that the descriptions in the ancient texts were often

*Only two small scientific incunabula were published in vernacular languages prior to the first herbals in German, Dutch and French, namely the Arte dell'abaco (Treviso, 1478) and Wilhelm von Hirnkofen's Der tractat Arnoldi de Nova villa von bewarig uff beraitüg der wein (Esslingen, 1478), a German translation of Tractatus de vinis by Arnaldo de Villanova. Most scientific books became available in vernacular editions only much later. The Elementa of Euclid, for example, were first translated into Italian in 1543, into German in 1555, into French in 1564, and into English in 1570.

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quite vague since the plants and trees and their names had apparently been well known to contemporary readers in Italy and Greece. Almost 2,000 years later, those names meant little or nothing and could often be applied to almost any plant. As a consequence, the compilers of herbals frequently assigned the same Latin or Greek name to quite different plants, sometimes arguing fiercely with each other about 'erroneous' identifications, and seeking to reinforce their arguments by referring also to the local vernacular names of plants and trees. One of their prime concerns was therefore the alphabetical arrangement of plant descriptions by their Latin names, the 'correct' translations of these names from the original Greek, and, with the steady rise of the vernaculars to a state of at least semi-respectability during the Middle Ages, also translations into the major languages then spoken in Europe.

The inclusion of vernacular names in Latin herbals and the simultaneous publication of herbals written entirely in the vernacular had also a much more practical reason. While it took some considerable degree of learning and sophistication to study the works of Greek and Latin writers (which constituted the bulk of early book production), anyone who spoke the vernacular and could read and write it, however imperfectly, could now easily learn how to preserve one's health and to cure common ailments—not an easy task at any time and particularly difficult in that age of perennial pestilence and plague, aggravated by a dismal state of public and private hygiene and a scarcity of doctors, who charged high fees for their services but knew precious little about the art of healing. There was therefore a large and ever-expanding market for these books which publishers were eager to exploit. And while Latin texts could initially make do with the printed word alone, as had largely been the custom throughout the Middle Ages, the vernacular editions of herbals had to be issued with illustrations that made it possible for the layman to identify plants, and also with good alphabetical indexes to vernacular names and to the multitude of diseases that could be treated with extracts, tinctures and ointments made from herbs.

At first, illustrations and indexes were often non-existent or at best crude and rudimentary, but within the course of a few decades the herbals were illustrated by superbly drawn and exquisitely cut images of plants, and they were also provided with name and subject indexes of a surprisingly high standard. These indexes were apparently heavily used, because many of the herbals that have come down to us are well preserved but lack some or all of their index pages. Since these pages were neither placed at the beginning nor at the end of a volume (from which positions pages are often missing in old books) but were generally put between the preface and the first chapter, we must presume that they disintegrated by being thumbed through hundreds of times.

We shall follow this development by looking at examples of herbals from the late Middle Ages, their first printed successors published during the incunabula period, to some of the magnificent plant compendia of the mid-16th century and to a turning point in index-making for herbals in the works of Fuchs and in the botanical and zoological works of Gessner.*

**Manuscript herbals**

One of the earliest manuscript herbals containing both figures of plants and an index to their names is an anonymous *Herbarium*¹ of the late 13th or early 14th century preserved in the library of the University of Pavia. Unfortunately, its modern transcribed edition states only that there is a 'short and incomplete index' on folio 129a (Gasparrini 1952, p. 9) whose arrangement and quality could therefore not be assessed; nevertheless, a secular work having some sort of index at all, however incomplete, is remarkable in itself at such an early time, seeing that both Daly and Witty state that even in papal records and legal material no alphabetical indexes can be found before the 14th century.

In another manuscript, *De virtutibus herbarum*² by Rufinus, dated ca. 1290, there is an alphabetical index to the names of plants, arranged by their first letter only (which had been the alphabetizing method used throughout most of the Middle Ages and was to remain so for more than 200 years).

*The following descriptions of indexes refer in most instances to the first edition of each herbal, because later printings or editions (of which there were sometimes a large number) generally followed the pattern set in the first edition. Only in a few cases, when significant improvements took place, are later editions of a herbal compared with the first one. I am grateful to the Library of Congress, the National Library of Medicine, the National Agricultural Library, and the Folger Shakespeare Library, as well as to correspondents in some other libraries, for making these works available to me.

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Incunabula

The earliest printed herbal, published in Naples in 1477, is a description of 88 plants in the form of an unrhymed Latin poem by Aemilius Macer⁵ (better known as Macer Floridus), probably written in the late 11th century; it had as yet neither illustrations nor an index. Only two or perhaps three years later, in 1480 or 1481, there appeared the first printed version of another very popular and much older botanical work (probably dating from the fourth century and preserved in many manuscripts from the sixth through the 15th century), namely the Herbarium⁴ of Apuleius (known variously as Pseudo-Apuleius, Apuleius Platonicus or Apuleius Barbarus), edited and printed by Johannes Philippus de Lignamine. This work, which is mainly a list of plant names and recipes from Dioscorides, was copied from a ninth-century manuscript in the monastery at Monte Cassino. It was arranged in rough alphabetical order of the Latin names of plants and was thus self-indexing. Alongside each Latin name the Greek one was given in transliterated form, but the editor added also Italian, French, ‘Aegyptian’ (i.e. mostly Arabic) and ‘Dacian’ (i.e. Slavic) names, a clear indication that towards the end of the 15th century the vernaculars had assumed a certain importance. In many instances, there were also Hebrew plant names as found in the prophetic books of the Bible, transliterated according to the Vulgate. As yet, however, there was no index to the Greek, Hebrew or vernacular names. Each plant was illustrated by a hand-coloured woodcut (largely copied from pictures in the manuscript) which, though rather crudely drawn, conveyed some semblance of a plant’s appearance; often these pictures showed also images of serpents, scorpions or beetles, if the plant was thought to be useful against their sting or bite (Figure 1). The herbal of Apuleius is thus one of the earliest illustrated scientific incunabula.

The first three herbals that were not merely printed copies of ancient manuscripts but new compilations (though also mostly based on the Herbarium and other medical and botanical works of the ancients) were published in Mainz, the cradle of the first printed books in the Western world.

Two of them came indeed from the press of Gutenberg’s associate and successor, Peter Schöffer. In 1484 he published a Herbarius⁸ that listed about 150 plants in rough alphabetical order by their Latin names, each of which was accompanied by its German equivalent. The book contained also descriptions of almost 100 animals and minerals considered to be sources of medicaments. According to Schöffer’s introduction, the book was to be an ‘aggregator practicus de simplicibus’ in quo quivis hominum sibi ipsi subvenire poterit paucis deductis ex-pensis’, that is to say a handbook of medicinal herbs and plants expressly aimed at the layman who might with the help of the book be able to become his own physician ‘at little cost’. Each

*In the terminology of the ancients, the individual medicinal plants were called ‘simplicia’; from a mixture of these ‘simple’ herbs extracts, tinctures and ointments, the ‘composita’ could be prepared.
Plant description was accompanied by a coloured woodcut in a rather stiff and decidedly Gothic style (Figure 2); the parts on animals and minerals were not illustrated. Despite the emphasis on practicality, no index was deemed to be necessary because the plants were listed by their (presumably well-known) Latin names, thus making the work self-indexing. The Herbarius was an immediate success and less than a year after its first publication it was also brought out in pirated editions in Louvain with the addition of Dutch plant names and in Paris with French ones. Schöffer must have realized that many laymen, though able to read, could not make good use of a Latin text, and only one year later, in 1485, he published an enlarged German version of the book, Gart der Gesundheitwhose compilation was ascribed to Johann von Cube,* town physician of Frankfurt; the first edition lacked a title page, but on the last page the title was explicitly named and most later editions also had it on the title page.

The Gart is one of the most remarkable herbals not only because it was one of the first incunabula on a scientific subject written in the vernacular, but especially from the point of view of its indexes which were far in advance of those that were compiled during the following four or five decades. First of all, few if any books at that time had any indexes at all. Second, the work had not only one but two such keys to its contents, namely an alphabetical name index and a classified subject index. Third, these indexes were printed in modern fashion at the end of the text and not, as became the custom in later herbals (and other indexed books until the 17th century) as a kind of augmented Table of Contents, put between the preface and the first chapter. The subject index followed the textual part of the book and was announced thus:

'... vnd ist ein register behende zu finden von allen krankheyt der mensche ...'†

It occupied 24 pages (leaves 207v to 220v) and was arranged in the sequence 'from head to heel' (a capite ad calcem), a time-honoured custom dating back more than 4,000 years to ancient Egypt§ followed throughout antiquity and the Middle Ages, and also observed in most of the early herbals that had subject indexes to diseases and organs of the body. After the diseases of the feet came other odds and ends of medical and pharmaceutical lore that did not fit into the main sequence, listed in no apparent order. The last entries dealt with the following matters:

How to make your guests gay and happy. Ch. 47, para. 8.
When you want to know whether a sick person will die or recover. Ch. 47, para. 5.
When the skin of young children is flaking off under the arms. Ch. 417, para. 2.
How to remove spots caused by the sun. Ch. 420 at the end.

†Shakespeare's well-known references to indexes (Troilus and Cressida, I, iii; Hamlet, III, iv; Othello, II, i) clearly indicate that in his time an index preceded the text of a work.

‡'... and is an index quickly to find about all diseases of human beings...'.

§The Smith papyrus, a collection of recipes and medical cases, written about 1600 B.C. (but based on works that were older by about a millennium) cites the cases in the same order.
What kills rats. Ch. 423 at the end.
To remove the worms that are stuck into the
sweatholes of young children. Ch. 425,
para. 7.

This subject index was followed by a name index of plants, arranged alphabetically (by first letter only) according to the Latin name of a plant, accompanied by the German one, and the chapter number (Figure 3). Each ‘chapter’ consisted of the description of one plant, ranging from one to several pages, and this method of arrangement was observed also in practically all subsequent herbals (although later on, both chapter and page numbers were used in index references).

Thus the very first name index found in a printed herbal already displayed the feature of bilingual terminology* which, as we shall see, was later developed into elaborate multilingual and even multiscript indexes.

*The custom of compiling lists of plant names in two languages has also very ancient roots. Cuneiform tablets dating from the seventh century B.C. list about 250 plant names in two columns, first giving the Sumerian name and then its Akkadian equivalent. Sumerian was by that time no longer a spoken language but it was considered to be the language of culture and wisdom by the Akkadian-speaking Babylonians, roughly equivalent to the status of Latin in the Middle Ages and Renaissance. Some of our present plant names may even be traceable to these Sumerian names, e.g. cumin (kamûnu) or myrrh (murru). See Thompson (1924).
The Ortus sanitatis\(^7\) (also known as Hortus sanitatis\(^*\)), the third herbal published in Mainz, was printed by Jakob Meydenbach in 1491. It was not, as the title may suggest, a Latin translation of the Gart but a work of much larger size and wider scope, including descriptions and illustrations of 530 plants, 122 animals, 106 fishes and other aquatic creatures, and 144 minerals and gemstones. Altogether, it contained more than 1,000 pictures, including some full-page illustrations showing how physicians and apothecaries went about their business.

The work had no less than six ‘tabulae’, four of which were tables of contents to each of the four parts of the book, namely plants, animals, fishes and minerals, arranged after the text (leaves 438r to 447r). A ‘Tabula generalis de herbis’ (leaves 447v to 453r) which followed these tables of contents was essentially a recapitulation of the names of plants in the order in which they were listed in the first part of the book. It began with a Prohemium that explained the purpose of the alphabetical arrangement and the index which followed it:

‘Cum supremi Dei adiutorio librum hunc (qui ortus sanitatis recte appellant) in finem usque feliciter perduximus ne te lectorem in eodem tediosi vagari contingat. Verum ut valeas (optime lector) cito in hoc opere invenire quod requiris quid remedium egritudini adhibere . . . Et primo in ortum herbarum tabula heccine indicem ponet.’\(^t\)

The names of plants were arranged in quite good alphabetical order, mostly up to the second and sometimes the third letter. After the list of names came an analytical subject index to the organs of the body and their diseases, with copious references to plants that could be used in their treatment and care. Most entries had from three to eight references to chapters and paragraphs (marked by capital letters in the margin of the text). Several entries, however, had more than 40 references, e.g. ‘Menstrua provocanda’ with 58, and ‘Dentium dolorem curandam’ with 54. A typical entry looked like this:

- Aurium dolor
- Ca ii\(j\) H
- Ca v D
- Ca vij D & K
- Ca xv T

At that time it was still considered necessary to indicate that the roman numeral referred to a chapter, but this custom was soon abandoned in later indexes, when readers apparently had become accustomed to the way a reference locator was printed; references to pages instead of chapters and paragraphs appeared only much later, as we shall see.

A remarkable and quite modern feature of this subject index was its arrangement, not in the traditional manner ‘from head to heel’ but in strictly alphabetical order, beginning with Alopitia (the ‘fox-sickness’ that caused hair to fall out) and ending with Yliaca passio (pain in the hipbone).

Thus, the Ortus sanitatis no less than its predecessor, the Gart, displayed elaborate and extensive indexes of a quality and mode of arrangement not attained by most of its immediate successors, and not surpassed until about half a century later.

The printers of subsequent editions were eager to draw the attention of prospective readers to the fact that indexes were provided. The second edition of the Ortus, printed in Strassburg by Johann Prüss, proudly announced on the title page that the book contained a ‘Tabula medicinalis cum directorio generali per omnes tractatus’, referring to the alphabetical list of plant names and the subject index.

The Herbarius, the Gart and the Ortus sanitatis were reprinted (mostly in pirated editions) many times during the next three decades, and they were very soon also translated into Dutch, French, Italian and English. We shall consider some of these translations later on.

By the end of the 15th century, the first printed editions of Greek and Latin texts of Dioscorides and Theophrastos had appeared, but these works lacked as yet name or subject indexes. According to George Sarton, at least 43 editions of the various herbals were printed during the incunabula period, ranking fifth on his list of scientific incunabula best sellers (Sarton, 1938).

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\(^7\) The first edition has Ortus, but some subsequent editions leave space for a large ornamental H before ortus. Either form makes sense, ortus meaning ‘source, origin’, and hortus ‘garden’.

\(^8\) With God Almighty’s help we have now successfully brought this book (truly named the Source of Health) to its conclusion, lest it happen, o reader, that you should have to wander around in it tediously. But so that you, dearest reader, may prevail to find quickly in this work what you require and what remedy of an illness you ought to apply. . . . And first, in this source, a table of plants shows their place in it.
Latin herbals of the early 16th century

About a quarter of a century after the publication of the amazingly well-indexed herbals printed in Mainz, separate name and subject indexes began to be included in texts and commentaries to the writings of the ancient medical and botanical authors. Among the earliest examples is a 'cartula herbarum secundum ordinem alphabeti' in an edition of Theophrastos' De virtutibus herbarum included in an edition of the Herbarius Latinus issued in 1509. Although the work itself is alphabetically arranged by Latin names, the index refers the reader to chapter numbers.

One of the most extensive subject indexes to herbs and diseases was provided by the Italian physician Ermolao Barbaro who published in 1516 the first annotated Latin translation of Dioscorides' Materia medica. It occupied no less than 58 pages printed in three columns of about 50 entries each, thus providing a key to over 9,000 items; all references were to pages.

In passing, we may also notice that a 1527 edition of the Latin poem on herbs by Macer Floridus was now equipped with an index of names, listing not only Latin but also Greek plant names in transcription.

Vernacular herbals

The earliest herbal in French, the Arbolaire (probably printed in 1487 or 1488), was a translation of a popular medieval work on plants by Platearius, Liber de simplici medicina (also known as 'Circa instans' after the first words of the text). It had a classified subject index, beginning with 'les remèdes pour les maladies de la teste' that occupied 18 leaves in double columns, and contained also a 'Lexposition des mos obscurs et mal cognus par lordre des lettres de a.b.c. ec.' (leaves 21-23).* Since neither the manuscripts of the text on which it was based nor its subsequent printed edition† had such indexes, it is reasonable to assume that their inclusion and arrangement were modelled on the indexes of the Gart. About 10 years after its first appearance, probably between 1498 and 1500, the work was published in another edition, this time under the title Le grant herbier en francoys, which was subsequently translated into English.

Shortly afterwards, in 1501 or 1502, another French herbal was published, the Jardin de sante, a translation and adaptation of the Ortus sanitatis. It had an index of Latin plant names with their French equivalents printed on the same line, but had no separate French index to those names; following the example of its source, organs and diseases were listed alphabetically but the entries were alphabetized only by first or second letter, and subheadings were listed in no apparent order.

An original work on plants (though not a herbal in the strict sense) was Hieronymus Brunschwig's Liber de arte distillandi, first published in 1500 with a Latin title yet written entirely in German; later editions had the German title Distillierbäuch. The book dealt both with plants and the techniques of distillation and was illustrated with some 200 rather coarse woodcuts. This first edition had only a list of chapters with an abstract for each, constituting a kind of table of contents combined with a classified subject index, but there was no subject index by name of disease, parts of the body or distillation apparatus. The subsequent editions of 1515 and 1521 contained also an index of 'composita', arranged by Latin name in rough alphabetical order, followed by an index of 'simplicia' showing on one line first the Latin name, then its German equivalent. Altogether, these indexes occupied 19 leaves with two columns to each page. The book was very popular and went through many editions and adaptations (the last of which was published as late as 1610), and it was also translated into several other languages.

In the 1520s it became customary to announce the presence of indexes in a prominent place on the title page of herbals, no doubt because publishers found that a book with indexes sold better than one without such keys to its contents. An early instance of such an index announcement is couched in language of which all indexers ought to be proud; the title page of an edition of the Gart printed in 1527 in Strassburg by B. Beck says:

'... Item ein neuw Register in welchem man den ganzen inhalt diss bûchs (als in einem Spiegel) sicht...'

In 1522 the first herbal in Italian was published, the Herbolario volgare, a translation of an earlier Italian edition of the Latin Herbarius

*This book is very rare and I have not seen a copy of it. The description of its indexes is based on the entry in Gesamtkatalog der Wiegendrucke, no. 2312.
†Venetiis: Bonetus Locatellus, 1497.

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printed in 1491 under the title *Herbolarium de virtutibus herbarum* and there fancifully ascribed to Arnaldus de Villanova and Avicenna, two famous medieval physicians whose works were then often cited as sources in various herbals. The *Herbolario* was arranged alphabetically by what can best be described as Italianized Latin plant names; it contained an index to those names and a brief subject index of diseases in rough alphabetical order.

Between 1521 and 1529 several English herbals were published, most of which were based on some of the Latin or German ones. The first two, *The Noble lyfe* and *An herball*, published in 1521 and in 1525 respectively, were still in the medieval tradition: they were not illustrated, and while the descriptive text was in English, the plants were listed mostly by their Latin names, with only a few English ones mentioned occasionally in *An herball*. That work concluded with a note 'Here foloweth the table of this boke in ordre by ye Alphabete' but this was no more than a brief and incomplete list of Latin and a few English names, arranged by first letter only, and without chapter or page references.

But only one year later, there appeared *The grete herball*, printed by Peter Treveris, which was by and large a translation of the *Grant herbier*. It had 'The registre of the chaptyres in Latyn and in Englissche' in somewhat stricter alphabetical order, and it contained also a subject index, placed at the end of the book, though this was not in alphabetical order and referred to chapters: this was followed by a subject index a revised edition which now had an index to Latin and a few English names, arranged by first letter only, and without chapter or page references.

Meanwhile, Brunschwig's book had also been translated from a Dutch version into English as *The vertuose boke of distyllacyon*. It had a 'Table of the names of the herbes' that occupied more than four pages, arranged in most instances by the Latin name, followed by its English equivalent, but occasionally also by English names only; alphabetization did not extend beyond the first letter, and references were to chapters. A typical example is the following sequence:

Fusamus ca. ccclxxviii  
Folia salvis/wyllow leues ca. cclxxvii  
Flowres of woodbynde ca. ccclxiii  
Flowres of borage ca. xvii  
Flowres of wylde pervynke ca. xxvii  
Flores fabarum/bene flowres ca. xxxii  
Flowres of the willow ca. cclxxviii

The book also contained an extensive subject index of 34 pages, printed in three columns and comprising about 1,500 entries; it was preceded by a detailed instruction and an example of how to look up an item in the classified sequence:

'Item this present table is dyuyded in xxxi ptes wherein ye shall fynde remedies agaynste all maner of dyseases or infyrmytees comyng or fallynge unto mankynde from the hede unto the fote. And these shall ye seke by the nöbre of youre chaptyres, and by the regystre of youre letters as ABCDE, etc. And seke to this in the xii chapitre in the lettre D after that seke for this in the xxvii chapitre in the lettre J. And in the lxxxix chapytre in the letter A.'

The 'Register of letters' referred to the paragraphs of each chapter which were indicated in the margin by capital letters. In this manner, a reference could easily be traced not only to its page but also to its exact place on that page—a helpful feature that is not retained in modern indexes, except those of encyclopedias.

**Early indexes in two scripts**

The Renaissance herbalists were concerned as much with the Greek names of plants as they were with the Latin ones, since all of the sources on which they based themselves (with the exception of Pliny) were Greek. But because Latin was the *lingua franca* of science, all herbals presented plant names first in Latin and secondarily in Greek, transcribed into Roman letters, and the same method was also used in the indexes. Only editions of the Greek text of Theophrastos and Dioscorides (first printed in 1497 and 1499 respectively by Aldus Manutius) listed the plant names in the original script.

But in 1529 there appeared the second edition of Barbaro's Latin translation of Dioscorides' *Materia medica*, which constituted a major advance in the art of indexing. The work was now provided with an extensive index of plant names, 'Index omnium quae toto hoc opere continentur', printed on eight pages in two columns, and arranged in strict alphabetical order, that is,
alphabetized by all letters in a name, not only by the first or at best second or third one, as had been the custom till then. Furthermore, each Latin name was followed by its Greek equivalent printed in Greek script, with reference to a page number, all set in one line, thus (Figure 4):

- **Abrotanus** ἀβρώτανος 347
- **Absinthium** ἀβσίνθιον 345

The most remarkable feature, however, was the subject index entitled 'Index multorum quae Graece Latineque toto hoc opere enarrata sunt', occupying six pages with three closely printed columns to each page. Here, an attempt was made to list both Greek and Latin names of diseases and organs of the body in one alphabetical sequence but without recourse to transliteration, printing each item in its original script. The method adopted was as follows: all Greek names beginning with a certain letter were listed first, followed by Latin names with the same or a phonemically equivalent letter. The filing order, however, was according to the Latin alphabet which resulted in the initial sequence

A, A; B, B; K, X, C; Δ, D; E, E; Φ, Π; ...  
(Latin letters are shown in italics to distinguish them from the Greek ones; note that Greek K and X are considered to be the equivalent of Latin C.)  
(Figure 5.)

In the same year, there appeared also a Latin edition of Theophrastos’ *De causis plantarum* with a commentary by Theodorus Gaza, which had a 23-page index of all Greek plant names in Greek script, followed by their Latin translation as given in the main part of the book. (Previous Latin editions of Theophrastos, published only a few years earlier, had not had any indexes at all.)

These are probably the earliest instances of multiscript indexes.

Such sophisticated methods of indexing did not, however, find immediate application in other herbals. An *Index Dioscoridis* was compiled in 1536 by Amatus Lusitanus (the pseudonym of a Portuguese Jew, João Rodrigues de Castello Branco) but despite this, from our point of view, promising title, it was no more than another compilation of plant descriptions, the only ‘index’ in our sense being a table of contents listing the Latin and Greek names of plants in rough alphabetical order; most of the Greek names were given in transcription, but some were also in Greek script, interfiled with the Latin ones. One must remember, though, that at that time the word ‘index’ was often used also in the sense of catalogue or list and not only as a name for a finding device pinpointing the exact place of an item in a book.  

*Conrad Gessner, in the preface to his *Bibliotheca universalis* (Tiguri, 1545) said that he had included items for a subject index.*
Figure 5. Dioscorides, Materia medica, 1530. Greek-Latin subject index.
The large illustrated herbals and their indexes

The decade of the 1530s witnessed a spectacular development of herbals, both in quantity and in quality: the works became successively larger, they were splendidly illustrated by some of the best xylographers, and they were issued in editions that were written entirely in the vernacular, as well as in Latin editions. Otto von Brunfels published in 1530 the first volume of his *Herbarum vivae eicones*, one of the most beautifully produced books of the period with pictures after watercolour drawings by the artist Hans Weiditz, a pupil of Dürer. This Latin work had only an 'Index contentorum singulorum' since it was largely self-indexing. Encouraged by the success of his work, Brunfels issued it in 1532 also in a German version entitled *Contrafayt Kreüterbüch*. In volume 1, all Latin and Greek plant names were listed in a fully alphabetical index referring not only to pages but also to sections of pages (each leaf being marked in the margin by A and B on the recto, C and D on the verso). Volume 2 contained an index of German names, this one alphabetized only roughly by first or second letter, and a subject index of diseases and their treatment, occupying the last five pages of the book. The fact that the book had three indexes was prominently announced on the title page (Figure 6).

In Brunfels' herbals as well as in some others published at about the same time, Greek names were still listed in transcribed form as had been the case before Barbaro's Dioscorides edition of 1529. But in Jean Ruel's herbal *De natura stirpium*, first published in Paris in 1536 and reissued in Venice in 1538 in two large volumes, Greek names in the 'Index copiosissimus' were again printed in their original form (though some were also given in transcription only). This index indeed deserves its epithet: it covered 102 pages, each of which had two columns of 45 lines, with an average of 50 items indexed on every page, or more than 50,000 entries for the whole book. References were to pages, those in volume 2 having an asterisk after the page number (each volume was paged separately). Thus, the making of indexes had advanced from rather crude and poorly arranged listings around the turn of the century to carefully alphabetized, analytical and comprehensive keys to textual information, including elaborate typographical arrangement of items in different scripts.

The large herbals in Latin and German dominated the scene, and they were also best sellers, printed and reprinted in large editions. Following their example, the French and Italian herbals were now also provided with indexes of vernacular names in addition to the Latin ones. A 1536 edition of the *Herbolario volgare*, for example, contained a four-page name index in Latin and Italian (the latter still being preceded by the prepositions dello, della, delli, or del) as well as an Italian subject index of seven pages, arranged by names of diseases, preceded by alle or alla; the prepositions were disregarded in filing, the alphabetical arrangement being by the second word and its first or second letter.

The success of the German versions of herbals originally written in Latin led in 1539 to the publication of the first major herbal written...
originally in German (though with plant names still listed first in Latin), the *New Kreüter Buch* by Hieronymus Bock. The first edition lacked pictures and was therefore a commercial failure; the German apothecaries and botanists had already become accustomed to the lavishly illustrated work of Brunfels, and mere verbal descriptions of plants in the medieval manner were no longer marketable, even though from the point of view of its indexes the book was better than anything that had been published before. Its index of Latin plant names was arranged strictly alphabetically, and so was the index of German plant names; interestingly, the former referred to pages, while the latter gave references to chapters and pages within a chapter. A third index was arranged, also strictly alphabetically, by German names of diseases.

The prolific Frankfurt printer Christian Egenolph, eager to capture his share in the profitable business of publishing herbals, commissioned in 1533 a *Kreüterbuch* compiled by Eucharius Roeslin (Rhodion) from the *Gart* and Brunschwig’s *Distillierbuch*, with pictures copied from Brunfels’s work; a second edition, published in 1540, followed the example set by Bock, providing a Latin and German index of plants, animals, and minerals, and a subject index of diseases. Later editions of this very popular compilation had even more elaborate indexes. Another of Egenolph’s products, the *Botanicon* compiled by Dietrich Dorsten from material found in Brunfels, Ruel and Brasalova in 1540, also had three separate name indexes: Greek names were printed in the original script, Latin and trade names were listed in a second index, and German names formed a third index, all with references to page numbers. The book had, however, no subject index of organs and diseases, and this was perhaps one of the reasons why it was not reprinted (whereas Roeslin’s compilation went through numerous editions): it could not successfully compete with herbals in which readers could find remedies for illnesses more readily.

To countervail the practices of printers such as Egenolph and many others who freely copied both text and illustrations from successful herbals, the authors of subsequent works often sought to obtain copyright which was mostly granted for five years. One of the earliest herbals to display such an ‘imperial privilege’ was *De historia stirpium* published in 1542. It was the work of one of the ‘Fathers of Botany’, the famous physician and botanist Leonhart Fuchs.

One full page in the large folio volume was devoted to the illustration of each plant which was listed by its Latin name, accompanied by Greek and German equivalents. There were three separate name indexes, each one printed in a different script or typeface, namely Greek in the original script, Latin in roman, and German in blackletter. These were followed by an extensive subject index of diseases and afflictions. A whole paragraph on the title page made readers aware of these finding aids. Both the name and the subject indexes were arranged in strictly alphabetical order, as had been the case in Bock’s herbal. It seems that from then on the medieval method of rough alphabetizing by first or second letter only was finally abandoned, and indexes to scholarly works were almost invariably alphabetized by every letter in the words of an entry.

Immediately after the Latin edition of his herbal, Fuchs published in 1543 a German version, the *New Kreüterbuch*. Its indexes were similarly arranged, except that in this edition, aimed at a less sophisticated audience, the Greek plant names were given in transcription and listed in a combined Latin-Greek name index. The subject index (‘Kranckheytenregister’) was arranged in strict alphabetical order by German names of diseases. The first entry shows the use of a *see* reference; the second entry deals with a condition that in our own time has become the subject of TV commercials using all kinds of euphemisms, whereas in Fuchs’ time a spade was called a spade:

Abnemē am leib. Sūch/Schwindsucht
Achseln gestanck vertreiben, ccxj.d†
(the reference being to chapter 311, part d) (Figure 7).

The Swiss polyhistor Conrad Gesner is best known to librarians as the ‘Father of Bibliography’ thanks to his *Bibliographia universalis.* But Gesner was first and foremost a physician and naturalist, and his lifelong interest was the description of plants, their morphology

*Waning of the body, see Consumption.*
†‘Armpit stench, how to get rid of.’ The recommended treatment is ‘seeds of fenugreek boiled in water and rubbed under the armpits.’ Fenugreek (*Trigonella foenum-graecum*) happens to be one of the plants whose name has been retained unchanged since the Renaissance.

‡His name is generally spelled Gesner but this is incorrect; see Wellisch (1975), p. 152.
Figure 7. Leonhart Fuchs, *New Kreuterbuch*, 1543. First page of subject index.
and their medical properties, based on field studies and not merely on the texts of the ancients. In his earliest botanical works (written in 1541 and 1542, before he embarked on the *Bibliotheca*) he sought to bring order to the chaotic state to which the study of botany had been reduced by the ever proliferating assignment of vernacular and commercial names to Greek and Latin plant names listed in the classical sources.

Gessner's first botanical work, *Historia plantarum* was an alphabetically arranged dictionary of plant names culled from the classical authors, with brief descriptions of each plant (but without illustrations). It was provided with a name and subject index referring to pages, all in strict alphabetical order. The book was printed in a handy format when first issued in Basel (135×95 mm), and a pirated edition printed within the same year in Venice was even smaller (105×75 mm), truly a pocket-book, perhaps the first on a scientific subject. Other pirated editions were brought out by two Paris printers who added to the classical Latin and Greek names French ones and Latin trade names, printed in the margins. The book became a best seller because students of medicine began at that time to study plants in their natural environment rather than by way of arid philological disputations on the texts of Aristotle or Pliny, and they could look up the classical names in this book without having to tote around several bulky tomes when going out into the fields.

Gessner himself next turned his attention to a more systematic display of classical and vernacular or commercial plant names and published in 1542 his *Catalogus plantarum*. In this work, the main sequence of names was in Latin, accompanied across the opening of two pages by their equivalents in Greek, German, French, and the Latin trade names by which apothecaries used to refer to certain medicinal herbs (Figure 8). This was both a terminological and a typographical innovation that exerted an influence on later botanical and zoological works as well as on our modern multilingual dictionaries which are often designed in the same manner. In an appendix, Gessner also provided a separate index of Latin and Greek names found in the works of Dioscorides.

One of Gessner's closest friends was the English physician and naturalist William Turner. In 1538 (when he was only 18 years old) he compiled a little booklet, *Libellus de re herbaria novus in quo herbarum aliquot nomina greca, latina & anglica habes,* yet despite this promising title, it was no more than a brief description of plants copied from the ancient sources, arranged alphabetically by Latin names, with a few transcribed Greek and occasional names thrown in quite haphazardly; it had neither an index nor illustrations. In 1543, after he had finished his studies as a physician in Italy, he met Conrad Gessner, with whom he had earlier exchanged letters about plants and animals, in Basle.

In 1544 he published *Avium . . . historia*, a book listing the Latin names of birds in the works of Pliny and Aristotle, with Greek, German and English equivalents (but without providing any index). Two years later, probably inspired by Gessner's *Catalogus*, he compiled a similar work on plants, this time in English, *The names of herbes in Greke, Latin, Englishe, Duche & Frenche.* The arrangement of plants was, as in the continental herbals, by Latin name, in each case followed by the English one. The names in other languages, however, were given only for some plants and not systematically as in Gessner's work. At the end of the book came a list of English plant names, alphabetized by first letter only, and without page references. This was, therefore, a rather mediocre work compared with contemporary German or French herbals. It was only when he published his *A new herball* that Turner sought to approximate the level of the continental works. The first volume, published in 1551, was illustrated with woodcuts copied from those in Fuchs' herbal. The plants were listed in the order of their Latin names, but with the English ones more prominently displayed in larger type, thus: 'Of Wormwoode. Absinthium.' The Greek and sometimes also German and French names were given in the descriptive text. On the last page of the book there was an index, 'The Table', containing only English plant names in more or less strict alphabetical order and with page references. It concluded with the sentence: 'Here endeth the table of the firste parte (God wyllynge) the nexte yeare ye shall have the seconde.' It was not to be. Turner, a Protestant, had to go into exile, and the second volume appeared only in 1562 in Cologne; this one had 'The Table' in the front matter but was also no more than one single page, containing English and a few Latin names. In the copy held by the U.S. National Library of Medicine there are numerous additions in handwriting, made by a 17th-century owner of
CATALOGVS

Cacubalum, species trichini, i. Sosianum nigris acinis.

Cady tas herba.

Calamagrostis, gramine harundinaceum.
Calamintha, vulgo Calamentum, cuius species numerantur tres.
Eadem nepeta.

Calamintha altera, Pulegium sylvestre Herbarijs.

Calamintha tercia; vulgo nepeta.
Calamus odoratus, vel unguentarius, vel unguentarius, vel aromaticus, Sunt qui Ga-

langam interpretetur, nobis uero calamum dicterm esse acorum, ca-

lamus, arundo, canna.

Calathianam in Viola autumnalis.

Calcifraga. Vide Empetrum.

Callibam Arabes vocant, in mar

timis prodeuntem, quan sal con-

citatur quem Alcalium nominant, &

et cinerea pula utrae candida, Fre-

quens est etiam in Gallis maritimi,

Leoniceps Thelphi arbitratatur, sed ille refellitur.

Caltha; vulgo calendula, secundum

Ruellium, quass calthula.
Camacias triti species, apud Theo-

phrastum.

Cannabis.

Nachtshatt. Morcella.

Ein unbekannte Kraut.

Ein grau mit heren blättern wie rox.

Ein Kraut dem wilden wolgemüt-

ganz gleich / aber vil hisiger zä

verfuchen: hat sein blümen nix

ein im dolder.

Ein wild münzen art.

Krautkrat.

Etlich meynend es sey nit vns-

fert.

Calamus / sander Galgenwurz.

Bedunke mich nit.

Ein rox.

Rosen, kann.

Weisser speyrbrech mit vil roten

köneren an der wurzel.

Ein Kraut wachse by dem meer/ aus welches äschen weisse glaiser

gemachte werdend.

Ringelblumen.

Solfia, quod solem sequitur ino

dito nomine.

Ein korn geschlecht.

Hans.

Chamare.

Figure 8. Conrad Gessner, Catalogus plantarum, 1542. Latin, Greek, German and French plant names displayed across opening.
the book, an indication that Turner's index was not comprehensive and omitted many plants that were actually dealt with in the book. Although Turner is often considered to be the 'Father of British Botany', his herbals fall considerably short of those of his European colleagues, not only in text and illustrations, but also indexes, which are particularly poor compared to those in the works of Fuchs and Ruel, not to mention the elaborate indexes compiled by his friend Gessner.

Multilingual and multiscript indexes after 1540

The rapidly increasing use of vernaculars for the pursuit of studies formerly conducted only in Latin led soon to the publication of herbals and other scientific books containing names of animals, minerals, and metals in most of the dozen or so literary languages of 16th-century Europe.* They were often also accompanied by multilingual and multiscript indexes.

Pier Andrea Mattioli, an Italian physician, was the first to write a commentary on one of the classic works of medicine in the vernacular. His *Di Pedacio Dioscoride. libri cinque delta historia et materia medicinale* first published in 1544, was written 'in lingua volgare italiana' and was provided with extensive name and subject indexes as well with an explanation of Italian medical terms. Only 10 years later was the work translated into Latin, entitled *Commentarii in sex libros Pedacii Dioscoridis*. Both the Italian and the Latin version became very popular, and the work is said to have been printed and reprinted in 32,000 copies—an enormous number for a book with a limited audience, published at a time when only a small segment of the population was literate.

In 1537, another Italian physician, Antonio Musa Brasavola, published a compendium on medicinal herbs, *Examen omnium simplicium medicamentorum*. This first edition had only a Latin name index with Greek names in transliterated form, occupying 15 pages. When a second edition was called for in 1545, it had an 'index locupletissimus omnium simplicium' on 50 pages, containing Latin names as well as Greek ones, the latter both in the original script and in transliterated form. The pages had both page numbers and line indicators, and the index referred each item to page and line, e.g. Acatia 447.8

(i.e. page 447, line 8), a refinement not found even in present-day indexes. Furthermore, the text of the book now contained plant names also in German, French, Spanish, Polish, and occasionally in Arabic, though no index was provided for those languages.

Hieronymus Bock, realizing his earlier mistake in publishing a herbal without pictures, now reissued his *Kreutter Büch* in 1546 with 477 beautiful woodcuts, some of which were even hand-coloured. This time, the book was an immediate success, not only because of the illustrations but probably also because of its extensive indexes which made it a truly practical handbook for the common man. The indexes were proudly announced on the title page:

'Darüber findestu drei vollkomene nützliche Register, unter welchen das erst die gemeine Latinsche und Griechische Namen der Kreutter hat, das ander die Deutsche, das dritt die anzeig der Arznei und Rhat für allerlei kranckheiten und leibsgepresten.'†

The three indexes were arranged similarly to those in the first edition, in strict alphabetical order, with Greek names in transcribed form. A typographical peculiarity is found in the German index, where items are referred to leaves, numbered with roman numerals, with a dot after a number indicating the verso of the leaf. The Latin index, however, refers to pages. Printers and indexers apparently experimented with various methods, and may at that time have thought that a different typeface (blackletter for German) also necessitated a separate method of pagination.

The work went through seven editions, the last one published in 1574. Encouraged by its success, Bock (Latinizing his name to Tragus) issued it in 1552 also in a Latin edition, *De stirpium . . . libri tres* to which Conrad Gessner contributed the preface and a bibliography of botanical writers, *De rei herbariae scriptorum*. The work had five separate name indexes, namely for Greek, Latin, German, Arabic, and Hebrew plant names, all alphabetically filed letter by letter. The Greek and Hebrew names were printed in the original scripts, with the Hebrew correctly printed from

† 'On these you will find three perfect useful indexes, of which the first has the common Latin and Greek names of herbs, the second the German, the third the references to medications and advice for all manner of diseases and afflictions of the body.'

*The European vernaculars of the early sixteenth century were (in order of linguistic affinity and from West to East): English, Dutch, Low and High German, Icelandic, Norwegian, Danish, Swedish, Portuguese, Spanish, Catalan, Czech, Polish, Russian, Hungarian.
right to left on two facing pages; the Arabic names were listed in transcribed form in Roman script. These indexes, occupying 48 pages, were followed by a 21-page subject index containing about 1,000 entries in Latin, referring to organs, diseases, and their treatment. References were to page numbers.

Bock’s multilingual and multiscript indexes in *De stirpium* were, however, not the first ones. This honour must go to the indexes compiled by Conrad Gessner. We have already mentioned Gessner’s early multilingual botanical work on plant names. He had now become famous throughout Europe both as a compiler of the *Bibliotheca universalis*, and even more as the author of a monumental zoological encyclopedia, the *Historia animalium.* In the first two volumes of this five-volume work, published in 1551 and 1554, Gessner included indexes to the names of four-footed animals in Latin, Greek, Arabic, Hebrew, Persian, German, French, Spanish, English, Polish, Russian, and Czech, all printed in separate sequences by language; the Greek and Hebrew names were shown in the original scripts, Arabic and Persian were partially transliterated, partially rendered in Hebrew letters. All entries were alphabetized letter by letter (Figure 9).

From then onwards, most authors of herbals, zoological treatises and other works on natural history sought to emulate the example set by Conrad Gessner. He influenced the work of most of his contemporaries through his extensive correspondence with a large number of physicians, botanists, zoologists, mineralogists, and other scholars of the natural sciences throughout Europe, from Norway to Italy, and from England to Poland, always eager to add new names of plants, animals or minerals to his extensive collections, and to have them displayed in successive editions of his own works as well as in those of his colleagues and friends.*

Gessner's contribution to Bock's herbal was thus not limited to providing a preface and bibliography but his influence can clearly be seen in the multilingual indexes of the work. During the same period, Gessner also edited the *Lexicon Rei herbariae trilingue* whose author, David Kyber, had died of the plague. The synoptic arrangement of Latin, Greek and German plant names also shows Gessner's systematic methods.

Practically all new herbals or new editions of older works published after 1550 contained plant and animal names not only in Latin and Greek but also in a number of vernaculars. The elaborate and sometimes ornate title pages that became fashionable at that time always announced this feature prominently, especially if indexes in all or most of the languages were also provided. A few examples may suffice. A commentary on Dioscorides by Amatus Lusitanus, published in 1553, had the title *In Dioscoridis Anazarbei De medica materia...quum passim simplicia Graece, Latine, Halice, Hispance, Germanice & Gallice proponantur...*. While the same author’s earlier *Index Dioscoridis*, published in 1536, had had no indexes at all, this one now had separate Latin and Greek indexes (the latter in the original script), and a comprehensive subject index, though there were as yet no indexes to the vernacular names which were listed only in the text itself. Another example is a 1559 edition of Roeslin’s *Kreutterbuch* whose title page announced: ‘Mit fleissigen vollkommenen Registern in sechserley Spraachen, nemlich, Griechisch, Lateinisch, Italianisch, Frantzosisch, Spanisch, Teutsch.’

A revised edition of Bock’s *Kreutterbuch* published in Strassburg in 1577 had five indexes: one in Greek script for Greek plant names, a transliterated Arabic name index, a Latin and German name index, and a classified subject index of diseases, occupying 21 leaves. Finally (and here we come to the end of the 16th century), John Gerarde’s *The herball or generall historie of plantes* published in 1597 (the first English herbal comparable in scope and quality of illustrations with the works of Fuchs or Bock) had five separate name indexes, occupying almost 50 pages: an ‘Index latinus’; an index of apothecaries’ trade names, Arabic names (in transcription), and ‘barbaric’ names; a concordance to plant names not used by the author; an index of English plant names; and a ‘Supplement...unto the generall table...from the mouths of plaine and simple countrie people’ (thus following an example set by Gessner who in his works and letters had stressed the importance

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*The Dictionarium latinogermanicum (Zürich: Froschauer, 1556) by Johannes Frisius, one of Gessner’s closest friends, contains plant names taken from Gessner’s works, and the names of animals and plants listed in Gessner’s encyclopedias were cited as the most authoritative ones in other contemporary dictionaries (Peters 1974, p. 27-35).
<table>
<thead>
<tr>
<th>Animal</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dare</td>
<td>40</td>
</tr>
<tr>
<td>Ballecola</td>
<td>nel</td>
</tr>
<tr>
<td>Icccara</td>
<td>uox</td>
</tr>
<tr>
<td>Barborum</td>
<td>105</td>
</tr>
<tr>
<td>Bardati</td>
<td>40</td>
</tr>
<tr>
<td>Borax</td>
<td>60</td>
</tr>
<tr>
<td>Bufo cornutus</td>
<td>60</td>
</tr>
<tr>
<td>Chalcidica</td>
<td>lacerca 1</td>
</tr>
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<td>1</td>
</tr>
<tr>
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</tr>
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<td>suet cordulus 47</td>
</tr>
<tr>
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<td>7</td>
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<td>21</td>
</tr>
<tr>
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<td>28</td>
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<td>chalcidea</td>
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<td>Lacerta</td>
<td>Martensis</td>
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<td>folias</td>
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<td>uncenanta</td>
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<td>Pharmacias</td>
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<td>uiridis</td>
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<tr>
<td>Niles</td>
<td>105</td>
</tr>
<tr>
<td>Mus aqauridis</td>
<td>105</td>
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<td>Mus marinus</td>
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<td>Rana</td>
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<td>Rana calamites</td>
<td>55</td>
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<td>Rana cistre</td>
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<td>Rana cornuta</td>
<td>60</td>
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<td>Rana dryopites</td>
<td>55</td>
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<tr>
<td>Rana gibbosa</td>
<td>58</td>
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<td>Rana lacunae uiridescen</td>
<td>61</td>
</tr>
<tr>
<td>Rana liruda</td>
<td>61</td>
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<tr>
<td>Rana muta</td>
<td>58</td>
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<tr>
<td>Rana marine</td>
<td>61, ma</td>
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<tr>
<td>Rana rubocele palufris &amp; terrestris</td>
<td>59</td>
</tr>
<tr>
<td>Rana scincoides</td>
<td>60</td>
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<tr>
<td>Rana temporarize</td>
<td>55</td>
</tr>
<tr>
<td>Rana uenata folis</td>
<td>55</td>
</tr>
</tbody>
</table>

**Vocabulary**

- Gallus
- Lignus
- Limax
- Lignum
- Mammal
- Vertebrata
A TABLE, WHEREIN IS CONTAINED THE Nature, Vertue, and Dangers of all the Herbes, Trees and Plants, of which are spoken in this present Herbal.

A

To cause Abortion, 54e, 696n, 970b. Good against Abortion, 624a.

To provoke women's natural Accidents, 57b. looke Termes.

Good against Woe, 514a.

Good for Aches in the hands and feete, 987e.

Good against or to take away all Aches proceeding of a colde case, 540, 5414, d.

Good for all Aches in the joints, 1016, a, 1114, e, 1026, b, 1050, n.

Against all manner of Aches in any part of the bodie, 187, 616, b, 732, e.

To mitigate the Ache and paine of seble limbs, 1339, b.

To helpe old Aches in the armes, hips and legges, 319, b, 433, e, 557, b, 711, c, 1119, d.

To abate or helpe Aches of the sinewes and joints, 652, a, 131, b.

To remedie the Ache of the Hucklebone, 198, b, 219, d, 3119, d, 1305, d, e.

To mitigate all manner of Aches, 1256, f.

To take away Aches of the armes and shoulders in short space, 711, e.

To confirm or cure away the Aches being vices in the head, 147, a, 1017, f, 1057, e.

To procure the Art of generation, 1355, d, looke To procure bodily lust.

To cure malicious vices of the Almonds in the throte, 365, a.

To take away the hot swellings of the Almonds in the throte, 161, d, 415, b, 696, a.

Against inflammations of the Almonds, 1394, a.

Good against old swellings of the Almonds in the throte, 364, a, 410, c, 687, a, 3613, l.

To helpe the Almonds of the throte, 638, h.

Albus Rancorius, an excellend and familiar purger, 410, g.

To helpe the diseas Alpecia, 88, e, looke harse, 1119, b, 1136, a.

To purge the diseas called Alphum, which causeth sertones in the bodie, 1114, d, 859, f.

To helpe the Angina, a swelling of the throte, 445, k, 1173, m.

To helpewrenches of the Thilfke, 114, l.

Good against Santonie fire, 413, e, 517, b, 618, a, 1074, b, 1173, a, 1207, c, 1278, b.

To appease or asswage S. Antonies fire speedily, 60, f, h, 161, b.

To cure S. Antonies fire, 169, a, b, c, 412, a, 472, c.

To cure S. Antonies fire, 369, a, b, c, 398, f, 318, e, 424, a, 649, b, 651, a.

To procure or provoke Appetite to meat, 215, a, 150, a, 279, a.

241, a, 872, d, 938, c, 311, b, 419, a, 428, b, 578, e, 596, a, 732, d.

1031, a, 1044, j, 1113, j, 1144, g, 1145, d, e, 1107, f, 1255, b, 1344, e.

1381, f, 1317, c, 1344, a, 1336, c.

To restore Appetite decayed, 849, d, 1223, g, 1368, a.

of gathering names of plants and animals from farmers, shepherds and fishermen). The subject index, though quite extensive (it occupied 24 pages, set in two columns) was less well arranged than some of its predecessors (Figure 10): it listed diseases alphabetically by catchwords printed in blackletter, but these were preceded by arbitrary introductory phrases, beginning with

To cause Abortion, 54e, 696n, 970b.

Good against Abortion, 624a.

To provoke women's natural Accidents, 57b, looke Termes.

Good against Yexing, 318a.

It was probably more difficult to find remedies for an illness in this kind of index than it was for a reader of the very earliest subject index to a herbal, the one in the Gart der Gesundheit, compiled more than a century earlier.

Conclusion

The techniques of compiling name and subject indexes were thus well established by 1550, and many works of non-fiction published during the second half of the 16th century and throughout the next two centuries had extensive indexes, often printed in more than one script when Greek or Hebrew words or names had to be indexed in theological, botanical, or zoological treatises. In this respect, these indexes were even superior to most of those produced in modern times which almost invariably resort to Romanization of words or names originally written in a non-Roman script.

The rendering of such names in Roman script is, of course, necessary and useful, but often (particularly in scientific works) it would also be helpful to have the name of an author or a place

Figure 10. John Gerarde, The herbal, 1597. First page of subject index.
spelled out in the original Cyrillic or Greek, especially since there are so many competing Romanization schemes, and no two authors use them consistently; the display of the original script is even more important for Chinese and Japanese names which are entirely ambiguous if rendered in Romanized form only. I have dealt with these issues in more detail elsewhere (Wellisch, 1978), and it would go far beyond the framework of this paper to elaborate on them or on the technical problems involved. Be it enough to say that if the typesetters of the Renaissance could produce multiscript indexes, using laborious and time-consuming manual methods, it should now be very much easier to achieve this with the help of computer-controlled phototypesetting and other innovative techniques. Perhaps we have, after all, something to learn from the very earliest multilingual and multiscript indexes compiled by the herbalists.

Unfortunately lack of time precluded any discussion of Dr Wellisch’s paper.

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17. *Brunschwig, Hieronymus. The vertuose boke of Distyllacyon of the waters of all maner of herbes... London: Laurence Andrew, [1527?].*

18. Dioscorides. *In Dioscoridem corollarium libri quinque... Adiectus est index eorum quae hisce explicantur, quem post Dioscoridis indices consulto locavimus. Coloniae: apud Joan. Soterem, 1530.*


20. Amatus Lusitanus. *Index Dioscoridis... Antverpiae: vidua M. Caesaris, 1536.*


24. *Herbolario volgare... Venetia: A. de Bindoni, 1522.*


27. Dorsten, Dietrich. *Botanicon, continens herbarum aliorumque simplicium... descriptiones. Francofurti: Chr. Egenolphus, 1540.*

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Discussion of Archie Turnbull's paper (see pp 73-80)

Dr Holmstrom asked how far the jurisdiction of the publisher's editor extended over the index, and was told that the initial decision whether to have an index relates to cost; the index is then controlled by the copy-editor. The author should not be expected to provide or pay for the index any more than for the jacket. The indexer, like the author, is subject to space restrictions and editorial discretion. Mrs Thomas asked whether a specially knowledgeable indexing editor might be appointed, but Mr Turnbull thought such might be difficult to place in the hierarchy: understanding of indexing technique is one of the skills of publishers' editors. With a clear initial brief there is no reason for tension between editor and indexer. Mr Chisholm asked whether the index was seen as a selling point; Mr Turnbull thought that little research had been done on this, but as publishers sell to booksellers rather than to consumers, no strong demand for indexes is felt. Mr Bakewell referred to press reviews concerning, and his own experience of, American editing as compared to British; it was agreed that in this regard, perhaps, 'We do too little, the Americans far too much'.

An interesting sidelight on the commendation by the Wheatley Medal Award panel of Hebe Jerrold's index to Hamilton Bailey's emergency surgery, is that Miss Jerrold is not a member of the medical profession. This issue is now before the American courts; whether a person who does not have professional qualifications in a particular field is capable of indexing in that field, and whether if so they should earn the same as a person holding a professional degree, for doing the same work.

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