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Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

Anga

Herbals
Critical Literature
Early refs

H.C.1.

General, including refs. & portraits

A History of Gardening in England

The Hon Mrs Evelyn Cecil

Arranged chronologically under the names of Authors or Translators, or under the date of the first-edition of their earliest work; or under the title of the book & the date of the first-edition when the writers names are unknown.

Bibliography of Works on Gardening. The Hon Alice Amherst.

Grete Herball There are said to be editions prior to the 1526

The W.C. in the Banckes label seems my own Walter Cary or William Copland

Definition of Herbal.

Murray's English Dictionary.

Perhaps repr. c med. or early mod. L. herbale
or Herbalis (sc liber) cf Med. Latin manuale
= a handbook. "A book containing the
names & descriptions of herbs, or of plants
in general and their properties & virtues."

Macfagan T. J. "Influenza & Salicin"
Nineteenth Century Vol 31. p 329.

"One remarkable fact in the history of malarial fevers is to find the poisons which cause them & remedy which cures them are naturally produced under similar climatic conditions. The Cinchona tree grows best in countries where malaria prevails. Judging ~~as~~ rheumatic fever from the same point, & regarding it as of malarial origin, it seemed probable that a remedial agency capable of curing it might - hopefully be looked for amongst plants which flourish under climatic conditions allied to those which produce the rheumatic poison.

THE EARLY NATURALISTS.

THE EARLY NATURALISTS. Their Lives and Work (1530-1789). By L. C. MIALL. (Macmillan. 10s. net.)

Few naturalists in this country are so well qualified as Dr. Miall to write the story of the lives and works of the Early Naturalists. Dr. Miall himself is a born naturalist, who takes all living nature for the subject of his study. His short nature studies, represented by a work which has almost become a classic, entitled "Round the Year," are known to and appreciated both by experts and laymen, while his own elaborate and successful studies of insect life make him particularly well qualified to discourse on the work of Swammerdam, Réaumur, and other observers whose investigations ran along similar lines. The author's aim is to induce his readers to make themselves better acquainted with the founders of modern natural history, and to this end he has made a rather strict selection of authors. He confesses that insects take up more than their due share of space; still, we forgive him, for he writes charmingly on a subject that gives him "more than common pleasure." Dr. Miall communicates his enthusiasm to the reader. So much have zoology and botany been recast since 1859—the date of the publication of "Origin of Species"—that we may consider all naturalists early who precede Darwin. Dr. Miall tells a great deal about the discoveries of these worthy men; but he does a great deal more, he acquaints us with how the discoveries were made. To know the history of a subject is indispensable, not only in natural history but, say, in medicine. It is lamentable to think that there is neither a professorship nor even a lectureship on the history of medicine in any of our universities or colleges.

Perhaps the best way of grasping the scope of this work is to set forth the author's arrangement of the subject-matter. There are a few pages of introductory matter, dealing with natural history down to the sixteenth century, in which he enumerates some of the "surprises" regarding "natural knowledge" which are to be found in Aristotle, who dealt with the whole range of science. Before the sixteenth century experiment was not yet reckoned among the resources of the natural philosopher. It must also be remembered that "science was rarely tolerated in the thirteenth, fourteenth, and fifteenth centuries, except when it took its least exciting form, or was patronized by some great Churchman." There are nine sections which deal successively with "The New Botany," "Natural History of Distant Lands" (to end of sixteenth century), "Some Early English Naturalists," "Ray and Some of his Fellow Workers," "The Minute Anatomists," "Early Studies in Comparative Anatomy," "the School of Réaumur," "Linnæus and the Jussieus," and, lastly, "Buffon." An obsolete medicine long hindered the emancipation of the biological sciences from tradition. Indeed, in the sixteenth century botany was regarded as a main branch of medicine, and constituted practically the whole of therapeutics. In Leyden, and even in Edinburgh, botany and medicine went together as one Chair. About fifty pages are given to "The New Biology" and a short account is given of the lives and work of Brunfels, Bock, Fuchs, Cordus, one of the discoverers of sulphuric ether and the first to trace the origin of coal to long-buried vegetation (1515-44), Conrad Gesner, L'Obel, Cesalpini, Belon, and Rondelet. Bock (1498-1554) knew the difference between stamens and styles, but he had no true notion of their physiological office. We wish the author had seen his way to reproduce a few of the woodcuts he describes; it whets curiosity to be told that "The five hundred woodcuts of the 'Historia Stirpium' (of L. Fuchs) probably surpass in artistic quality any long series of botanical figures that has ever been published." Gesner (1516-65) was the most learned naturalist of the sixteenth century. Besides being a Professor of Greek, he published "Bibliotheca Universalis, Pandectæ Universales," and part of a "History of Animals"; and he it was who introduced the pleasing usage of naming the genera of plants after meritorious botenists.

In the chapter on the "Natural History of Distant Lands," of course, the voyages of discovery go back to times whose history is inextricably mixed with legend, and the author gives characteristic examples. When dealing with some early English naturalists, including William Turner (1510(?)-1568), John Gerard (1546-1612), John Caius (1510-73), Moufet, and Butler, the author remarks that "Englishmen took no part in the revival of botany and zoology, any more than in the invention of printing, engraving, and other useful arts, but were during many years content to imitate as well as they could the example of more advanced countries." They were, however, successful pioneers in other directions, while the glorious literature of the "spacious times" of Elizabeth attest the vigour of our forefathers during that memorable period when the maritime strength of England contended successfully and vanquished the power of Spain in all seas. Gerard is best known to laymen by his "Herball," which is useful because he tells us what plants were cultivated in English gardens at the time when he wrote; but we are told "his memory is tarnished by unscrupulous borrowing." Lovers of dogs should read the short account of the "Dogs of Britain" by Caius, the founder of Caius College, Cambridge. The Old English greyhound was originally a "gasehound," or "gazehound," our modern word greyhound being a corruption of the gazing or seeing hound. An account is given of the French agriculturist Olivier de Serres (1539-1619), who did so much to spread the silk industry in France.

We now come to John Ray (1627-1705) and his fellow-worker and associate, the wealthy Francis Willughby (1635-72). John Ray's life and his work are well known and appreciated. On the death of his wealthy friend Willughby in 1672 Ray had many difficulties to contend with, and his life in the main was one of poverty and seclusion. The author gives a judicious estimate of the work of Ray, to which we refer our readers. One of the most interesting chapters is that on "The Minute Anatomists." Now the microscope becomes an important instrument in research. To this group belong Hooke (1635-1703), Malpighi (1628-94), Grew (1641-1712), Swammerdam (1637-80), and Leeuwenhoek (1632-1723). All were great as observers; they were little given to experiments, though Hooke and Swammerdam did so. Hooke and Leeuwenhoek were micrographers. The author gives an account of the "discovery" of the microscope—perhaps the word "invention" would be more appropriate; and again we think it a pity that one or two of the illustrations in Hooke's "Micrographia" are not reproduced by the author. It was in 1662 that Hooke was appointed Curator to the Royal Society; and, indeed, this period of search after natural knowledge is brilliantly set forth by the author, who gives quotations from the works of Hooke and those of Malpighi. Several of the treatises of Malpighi were comments to the Royal Society and published in London—*e.g.*, "De Bombyce" (1669), "De ovo incubato" (1672), "Anatome Plantarum" (1675-9), "De formatione pulli in ovo" (1673). Dr. Miall ruthlessly destroys the pleasant legend of the chestnut bough which it was said set Malpighi on to the study of plants. Most of the figures in the "Anatomy of Plants" are surprisingly good, but the text is not so good as the figures. In his account of the development of the chick Malpighi was able to use magnifying glasses in his work. A full account is given of his physiological discoveries and how he saw the capillaries in the lung of a frog (1660)—his greatest discovery—thus completing Harvey's doctrine of the circulation of the blood. We think the author's appreciation of Malpighi is just and impartial. Nehemiah Grew stands out conspicuously as an investigator of the anatomy of vegetables and plants generally; and so accurate are his observations that Dr. Miall calls Grew's description of the bean-seed an object-lesson, "one of the first object-lessons ever written." Swammerdam and his "Biblia Naturæ," published long after his melancholy death, come next. All interested in natural history should read the life of Swammerdam, "whose short and troubled life was not spent in vain," and lovingly regard and study the beautifully-executed plates of the "Biblia Naturæ." Anton van Leeuwenhoek owed nothing to any University, knew no language but his own, yet he made many discoveries in minute structure and initiated biological inquiries of the greatest interest, such as parthenogenesis of aphids and the revivification of dried rotifera and other microscopic organisms. Most of his communications were published in the *Philosophical Transactions.*

The early students of comparative anatomy are, amongst others, represented by the Tuscan poet and naturalist Redi (1626-98), Perrault, physician and architect (1613-1688). To the school of Réaumur about sixty pages are given, and of course the author is in his element when writing of the wonderful achievements of Réaumur (1683-1757), Trembley (1700-84), of hydra fame, Bonnet (1720-1793), who showed that aphids produced new generations without fertilization, Lyonnet (1707-89), whose "Traité Anatomique" is perhaps the most laborious and beautiful example of minute anatomy which has ever been executed, and Roesel von Rosenhof (1705-1759). All botanists interested in the history of their subject will read the fascinating account of Linnæus (1707-78) and the Jussieus. The book closes with an account of the work of George Louis Leclerc, Comte de Buffon (1707-88), who early in life translated Hales's "Vegetable Staticks" (1735), and Newton's "Fluxions." The article throws much light on Buffon's personal qualities, while setting forth the magnitude of his scientific work. Not the least interesting quotations, giving some examples of his "maxims, definitions, and descriptions," the reader will find on p. 385. Dr. Miall has done admirable justice to the early pioneers of natural history; and our only regret is that the book has no illustrations.

[Book in Professor Nathorst's Library]

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Wittrock, V.B.

Catalogus illustratus Iconothecæ botanicæ Horti Bergiani Stockholmiensis. Pt II 1905

Acti Horti Bergiani. Meddelanden från kungl. svenska vetenskaps-akademiens ~~trädgård~~

Bd III. Afd. II

Plate 5. Albertus Magnus from a portrait by Giov. Angelico

Plate 6. Otto Brunfels aged 46 years from an old wood cut. A primitive-looking thing.

Plate 7 A portrait of Bock from an engraving not a wood cut which I had not seen before

Plate 9 Portrait of Jesner from an engraving by De Bry

Plate 14 Robert Morison from a painting by Summan, engraved by White

Plate 15. Malpighi (does not give source

Plate 16 John Ray from an engraving by H.K. Meyer

Plate 20 Joseph Pitton de Tournefort from an engraving by Maulet-del. Pigeot

Bd IV Afdelning I is also portrait but more modern.

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THE EARLY NATURALISTS

THEIR LIVES AND WORK

(1530-1789)

BY

L. C. MIALL, D.Sc., F.R.S.

MACMILLAN AND CO., LIMITED
ST. MARTIN'S STREET, LONDON

1912

EXTRACTS FROM PREFACE

The old naturalists have occupied so much of my leisure of late years that it becomes a pleasant task to write about them. My chief aim is to induce such readers as I may find to make themselves better acquainted with the founders of modern natural history. To succeed in this attempt a rather strict selection of authors is indispensable, and I have been forced to omit many of those workers at details to whom natural history owes so much, in order to give fair space to the pioneers who opened out new fields of inquiry or introduced new methods. I cannot pretend, however, to have been altogether consistent and impartial in my selection. Some old works have been included, not so much because they are important as because they give a lively picture of the state of knowledge in a past age. Insects take up more than their due share of space, partly because they are really prominent in the works of early naturalists, partly because old books about insects give me more than common pleasure. Such preferences are natural, and if not pushed too far, may be advantageous to the reader as well as to the author. No more fatal mistake can be committed by an author who undertakes to handle a wide subject than to fancy that he can attain to completeness unless indeed his work takes the form of an index; and it is almost as unpromising to divide the space impartially among the persons or things to be described; the product, however well-proportioned, is sure to be lifeless. . . .

The time bestowed upon the Early Naturalists by author and reader will have been well spent if it helps them to attain a comprehensive view of biological history, which is indispensable to the appreciation of recent work. History is necessary to the student who practises modern methods and is inspired by modern ideas, for the same reason that embryology is necessary to comparative anatomy; to know what is we must know how it came to be.

CONTENTS

Miall L.C. The Early Naturalists. Their Lives - Vale (1530-1789). London 1912.

Ref Wright. Popular Treatises on Science written during the Middle Ages 1841

---

p12 Ichneumon flies thought that herbs grew in the districts where the diseases they cured were prevalent

Ref. F.W.L. Roth. Bot. Zeit 1899 (Brunfels)
F.W.L Roth. Bot Centralbl. 1898 Hp 265-271; 313-8, 344-7

p95 In the preface to the Stirpium Illustrationes L'Obel calls attention to the fact that the mountain plants of warm countries descend to low levels further north.

p41. Belon studied Botany under Valerius Cordus

P55. There is a portrait of Belon prefixed to the Latin translation of "Les observations des plusieurs singularitez"

p71 Christobal Acosta was the pupil of Garcias ab horto

p74 Clusius made (in conjunction with Busbecq rotices) the horse chestnut, lilac, mock-orange, tulip - common laurel known & the gardeners of Europe

p79 There is something about plants in Abraham Flemings translation of Caius' "De Canibus Britannicis" called "of Englishe Dogges" - 1576

p106 Ray had noticed the submerged leaves of Isoetes Segetalis in his Synopsis Stirpium 1696 (? any earlier ed.)

p137 The telescope - compound microscope were invented between 1600 & 1625 (Accord. the Opd microscope dates back to 1590)

p219 Leeuwenhoek's figure of a piece of lime wood cut longitudinally is believed to be the earliest representation of dotted ducts. Epist 74. Arc. Nat. 1692. VI II p302. pl209. fig9

p329 Linnaeus said in conversation to Gmelin "a character of a natural order is impossible"

Green, J.R. Some Old English Herbals in the Botanical Library at Cambridge - Year-Book of Pharmacy. London. p. 364. 1910.

p. 365. Says that the blocks used in L'Obel's Observationes 1576 may still be seen in the Musee Plantin at Antwerp.

p. 366. Recognises 1650 as the end of the Herbal period

In the discussion Mr. G. C. Druce said that at Oxford there is a copy of L'Obel's Adversaria which had been annotated, probably by the author, in preparation for a second edition. It had later been owned by Hans of the Physic

This paper is practically of no value. Green evidently doesn't know much about it. It is merely the gas-bag history of old Botanical books when the Pharmaceutical Conference was held in Cambridge in 1910.

Greene E.L. Landmarks of Botanical History. A Study of certain Epochs in the Development of the Science of Botany. Pt I. Prior to 1562 A.D. Smithsonian Misc. Coll. Pub. 1 Vol 54. 1909

("United States National Museum")

J. Edward Lee Greene

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Earliest-Printed Herbals.

Pharmaceutical Society

1517 ed. of Artes Sanitatis or Pharm Inc.
Also number of old Pharmacopeias.

Oribasius. De herbarum et simplicium. * 080.1.
Bound up with both above other treatises about
herbs, but all purely medical.

Also similar books 1510 "Summes Januenais
Jusculus cui nomen clavis Sanationis"
Venice 1510

+ a Thesaurus Aromatariorum of 1507

Apuleius Platonicus

Ernst Meyer. Geschichte der Botanik - Bd II
p 316 - 1855

Manuscripts differing much among themselves. Four old printed editions, differing from one another - derived from different mss.

I. Jo. Phil. de Lignamine. from a ms of Monte Cassino. Rome. No date. Not later than 1473. After the dedication it begins with the words "Incipit Herbarium Apuleji Platonici ad Marcum Agrippam."

In the dedication de Lignamine speaks of Apulejus Platonicus as a pupil of Plato, & says that the work originated ~~with the Centaur~~ Chiron

II Apuleji Madaurensis philosophi Platonici viri clarissimi (de) Herbarum virtutibus vere aurea et salutaris historia, quam a Chirone Centauro praeceptore Achillis et ab Aesculapio accepit, hactenus nunquam in lucem edita. (1528)

III (1537.) In hoc opera contenta: Ant. Musae de herba Vetonica liber I L. Apuleji de medicaminibus herbarum

IV under name of Oribasius 1533 - 1544

~~V~~

(p 321) This work is very useful as giving constantly hints in synonymy of plants. The descriptions are generally taken from Dioscorides & Pliny

Meyer on Apuleius Platonicus

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In the Bodleian Library A.S. translation of
Apuleius de herbis in 184 Chapters, which King
Elfred the Great (crowned 871) is said to have
brought about
(2 Has a translation of this been begun by the Anglo
Society.)

1925

Meyer concludes that Apuleius was a heathen, living
in Africa, & that he wrote as early as the fifth
century, or possibly even the fourth.

Lenormant, F. =('55)

Note sur une vignette d'un manuscrit de la Bibliothèque Impériale. Bull de la Soc. Bot. de France. ## VI II pp 315-320. 1er. fg. 1855

Bibliothèque Impériale, ancien fonds latin N° 6862.
Pseudo-Apuleius herbal of about 9th cent, but with figures copied from some earlier source
Fols 18 verso has a figure of Asculapius gathering Betonica officinalis. The box carried by Asculapius appears from the colouring in the manuscript to be of metal & elongated shape (I must say this reproduction leaves much more to be desired) AA
Dillenius to David Shearer inventor the collecting box in appearance to the basket -
The figure would be good for reproduction

Verard + Ortus Sanitatis + Henry VII

Antoine Vérard. by John Macfarlane 17
Printed for the Bibliographical Society. Illustrated Monographs No. VII
London / Sept 1900 for 1899

p XIV-XV Henry VII patronised Vérard. In Henry VII's accounts, which are preserved at the Record Office, we find in the Account Books of John Heron, Treasurer of the Chamber, under date 18th June, 17th Hen. VII / 1501-2) "Item to Anthony Vérard for two bokes called the Gardyn of helth ---- £6" This refers to the Ortus Sanitatis (No. 140), the identical copy (in two parts) is still in the British Museum

p 70 Descr. of the
Ortus sanitatis / Translate de latin / en francoys. # Also called "le jardin de santé"
Brit. Mus. C. 22. f. 10. [This is not on vellum]
p. 15.

p xvi Vérard may have been a publisher only, not a printer Macfarlane believes that Vérard employed various printers to print some of his books, but also had an establishment of his own

Early Printed Books E. J. Duff.

p 21

The earliest specimen of printing from movable type known to exist was printed at Mainz in 1454

p 204

"As regards the future, there does not yet seem to be any fixed rule as to the form in which it should be written, whether in Latin or English. ... now that many books are being written in English, it seems more desirable to use the English forms. The pedantic habit of using the name in the vernacular ... should be avoided. ..."

p. 277.

Megan on Book of Nature

The fig. shows Ranunculus acris,
Centaurea Cyanus, Viola odorata,
Convallaria majalis, the leaf rosette of Erophila
verna. Others unrecognisable. (This is described
from the late 1455 edn.)

A very large number of manuscripts of the book of nature exist. Vienna 18 & Madrid 20

17 !

Book written middle of 14th cent. Compilation from the Latin

Prantl. SA Meister Johann Wonnecke von
Caub. Bot. Zeit. Jahrg 4 p 785. 1846

Thinks that it is more than probable that the Herbarius
Sanitatis* was popular thirty-the 16th century
especially in S Germany

*He certainly means the German Herbarius
Finally published as late as 1770 by Balthasar
Eberhart!

He has no fresh information to give about
Cuba, except that the "Lersner'schen
Chronicke" there is a register of the Frankfurt
Doctors in the year 1484 which includes
"Johann Wonnecke (Dronnecke) von Caub"
which he thinks is undoubtedly the same man.

52, HUNTINGDON ROAD,
CAMBRIDGE.

Ency. Brit. XI ed. V XXI. 1911.

Pharmacopoeia (lat. the art of the φαρμακοποιός, a drug compounder), in its modern technical sense, a book containing directions for the identification of simples, the preparation of compound medicines, published by the authority of a government or of a medical or pharmaceutical society. The name has also been applied to similar compendiums issued by private individuals. The first work of the kind published under government authority appears to have been that of Nuremberg in 1542; a young student named Valerius Cordus shared a collection of medical receipts, which he had collected from

23

Ap. 39

A CHAPLET OF HERBS. Gatherings from the Early Herbals. By FLORENCE HINE. 6¼×4¼. 168 pp. Routledge. 2s. 6d. n.

This is rather a happy thought in the way of anthologies; and the quaint little extracts gain attraction from the editor's introduction. Bibliography.

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Botany before printing

Lucian. XIII

Asklepios - Herakles quarrel on a question of precedence in heaven.

"you are a paltry herb-doctor & mountebank, skilful possibly, in palming off your miserable drugs upon sick fools, but who have never given proof of any noble, manly disposition"

Lucian's Dialogues. Transl. by Havard Williams. London 1888 Bohn's Classical Library.

Meyer on Theophrastus
Class.

Meyer p 162

Theophrastus. History of Plants

Distinguished ~~Ges~~ Trees, Bushes, Shrubs & Herbs. In each of these classes domestic & wild plants are distinguished. Distinctions of lesser value are those between bearing & not bearing fruit, bearing & not bearing flowers, evergreen & deciduous.

p 6. Theophrastus mentions 455 plants probably about 500 were known in his time. The no. of species of plants in Greece to now estimated at 3000

p165
Good descriptions of Nelumbium speciosum

Nymphaea lotus, Trapa natans
Bk IV Chaps 8 & 9

p166. Distinguished centripetal & centrifugal inflorescences, which no botanist seems to have observed between his time & until Robert Brown & noticed them

p 166
Theophrastus made observations on ~~the~~ germination of grass & pulse seeds, which Meyer considers probably served as the basis for ~~a great~~ the most important part of Andrea Cesalpino's Plant System of 1583. But these observations do not seem to me to amount to much. He saw the single tap root of the bean & the numerous more slender roots of the wheat. He describes the root & stem as rising from the two ends of the seed in the wheat & from the same point in the bean.

Theophrastus Travel: by Sprengel

Theophrasts Naturgeschichte der Gewächse. Uebersetzt und erläutert von K Sprengel. Altona 1822 2 parts

Theo II

Alexander through part of his travels on the banks of the Oxus + the Indus, + sent specimens of animals to him. Theophrastus was diffident. He collects observations, either himself, or gives truth. He does not even seem to have explored Greece with any completeness for a single part of it — other is evidence that travel in those days was not attended with any particular difficulty in Greece

Theo I Actual translation of Theophrastus' Natural History of Plants

Book IV Cap IV

"But the provinces of Asia have each their own plants, + there are regions which produce some plants — but not others. Thus vines cannot thrive — neither ivy nor olive grow in Asia (ibn Syrian Assyria, 5 days journey from the sea. But they appear again in India — Alexander was detained there 7 days on his journey from India — He goes on to give other instances

Theophrastus transl by Sprengel. Plant-Description.

Book IV Chps 8 + 9 Very good description of the Lotos, Nelumbium speciosum & Trapa natans

He has been talking of Egypt

Chap. IX p163 - Description of Trapa natans

"Jeder Fluss* scheint aber ein besonderes Gewächs hervorzubringen, wie dies auch von den Landpflanzen gilt. Denn auch die Wassernuss wächst nicht in allen Flüssen und überall, sondern nur an sumpfigen Stellen der Flüsse. Wo sie am tiefsten steht, da beträgt diese Tiefe fünf Ellen oder etwas mehr, wie im Strymon. - Fast eben so tief stehn das Schilf und andere Gewächse. Es ragt aber von (der Wassernuss) nichts hervor, als die Blätter, so dass sie über der Frucht schwimmen und sie verbergen; die Nuss selbst senkt sich in die Tiefe des Wassers. Das Blatt ist breit, ähnlich dem Ulmenblatt, und hat einen sehr langen Stiel. Der Stamm ist oberwärts am dicksten, unterwärts aber bis zur Wurzel ist er dünner, und hat haarförmige Ansätze, die meisten

gegenüberstehend, nur einige aber auch abwechselnd. Die unten aus der Wurzel hervorkommen, sind gross, die obern werden immer kleiner, so dass die letzten ungemein klein sind. So entsteht ein grosser Unterschied derselben, je nachdem sie aus der Wurzel kommen, oder in der Nähe der Frucht stehen. Es sind mehrere Seitensprossen, drey bis vier, die grösste steht der Wurzel am nächsten; kleiner ist die folgende, und die übrigen im Verhältniss. Diese Sprosse ist wie ein zweyter Stamm; doch dünner als der erste, und trägt die Blätter und Frucht auf dieselbe Art. Die Frucht ist schwarz und sehr hart; wie gross aber und welcher Gestalt die Wurzel, das muss noch untersucht werden. Die Natur des Gewächses ist nun folgende. Es wächst aus der abfallenden Frucht, und treibt im Frühling eine Sprosse. Einige sagen, es sey eine jährige Pflanze; Andere, die Wurzel daure sehr lange, aus welcher auch der Stengel treibe. Dies muss noch untersucht werden. Aber ausgezeichnet vor andern Gewächsen sind die haarförmigen Auswüchse des Stammes; denn sie sind weder Blätter noch Stiele; dies seitliche Sprossen ist übrigens dem Schilf und andern Gewächsen gemein."

Alcock. Randal H. Botanical Names for English Readers. London 1871

Byrne writes a history of Botany, 83 pages.

Dioscorides said by some to have been physician of Antony & Cleopatra, — by others to have been physician of Nero.

During the disturbed state of Europe caused by the incursions of barbarian invades, the progress of Science in Greek & Rome was stopped & for several centuries it was only carried on by the "Arab physicians", who rose in Arabia, but were natives of India, Persia, Mesopotamia, Syria, Arabia, Egypt, Morocco etc. Arab learning reached its climax in the 12th century.

A list of Latin generic names of plants with their derivations.

? Meyer's Geschichte. 30

Aristotle Father, grandfather & great grandfather were doctors.

His "Theory of Plants" is lost

~~His~~ Such botanical writings of his as exist have been collected into an edition by Wimmer which Ernst Meyer translated Vol I Book II p 94 – 146

~~Précis of this~~: – Very different to make much of, except now & then

Aristotle believes ~~in gradual transition from animals to plants~~ that the animal & vegetable kingdom are not sharply divided from one another

He regarded all living beings as possessing a soul. All natural bodies are the organs of the soul, – animals as well as plants; they exist through the soul p96

Plants are distinguished from animals by having no sensation.

The essential part of the plant is the crown, or the part between stem & root where the upward & downward parts come together

p128

Why does a grain of wheat give rise to a grain of wheat & not an olive? It is not fire or earth, – love or hate ~~but the being~~ since the one is merely the cause of union, the other of separation; but "das Wesen eines jeden Besondern ist die Ursache davon."

Albertus Magnus

Meyer's Geschichte der Botanik. T. IV Buch XII

p 12 name, Albert Graf von Bollstädt

1193 or 1205 — 1280 *

p 39. Meyer considers that — in the period of 2000 years Aristotle, Theophrastus, Albert, Caesalpinus are the 4 greatest names, although Albert is the least great of the three

Pouchet recognises two epochs of Science in antiquity, — the Greek which reaches its highest expression in Aristotle, the Roman represented by Pliny, — that of Observation, the Middle Ages added a third — that of erudition; — of which Albertus Magnus & Roger Bacon (1214–1292) were the founders.

Roger Bacon never touched on Botany

Meyer says of Albertus (p 47) "The fecundity in the mastability of species he shares with Pliny, Theophrastus, & all his predecessors; it is a tribute which he owes to the epoch in which he lives — Let us not be too proud! The future will not be too proud! The future will not fail to disclose similar prejudices in us" *

Albert says that to go through all the species & to name them would be too vast & detailed, — is no business of the

* Aristotle born B.C. 384
Caesalpinus died 1603

His vol. pub'd in 1857
Origin of Species 1859

(Meyer) Albertus Magnus contd.

Philosopher, who seeks for the origin of things.
In spite of this remark, in his sixth book he gives descriptions of a number of plants, especially trees.*
Some of the descriptions are very good. others, especially that of the fruit of ~~the~~ apple (see Meyer p. 70) & of the acorn (Meyer p 73). In the latter he recognises that the inner part ~~could be~~ is split into two longitudinal halves, between which the embryo is situated, & which serve for its nourishment.

(p75) Albertus believed that it was only in trees that the nature of plants was fully expressed, so he devotes comparatively little attention to herbs

(* But he says "In hoc sexto libro magis (p65) satisfacimus curiositati studentium quam philosophiae.")

p62 Albertus was much concerned about the souls of plants, & troubled by such problems as whether in the case of union of two plants, such as ivy growing on a tree, their souls also unite!
His ideas about the mutability of species were largely mythical, — for instance he says of you completely cut down an oak or beech wood, aspens & birches arise in their stead. But he has a chapter headed "De mutatione,

qua domestica fit silvestris, et e contra silvestris domestica, in which he describes the how cultivated plants may run wild + degenerate, + wild plants may become domesticated.

p60. He says that even in boiling hot springs - sulphur springs vegetation is not absent

Albert owed his knowledge of Aristotle to

Nicolai Damasceni de plantis libri duo

This is regarded as Aristotle's ancient work, whereas it is only a later version, from an Arabic translation of Aristotle's zoology

Meyer VII I p 46

This was only a small work, whereas Albert produced a large books - She indicates how largely he added on what he received of Arabic botany

VII IV p 87

Albertus came to the rather acute conclusion that the flesh of a succulent fruit is not intended for the nourishment of the seeds, since while the fruit is still hanging on the tree, the sap passes to the seeds from the fruit-stalk, + after it falls the seeds germinate better if the flesh is removed than if it is allowed to remain until it decays.

p 58: Deals with seeds, germination

p 60. Distinguishes thorns + prickles - the one as products of the wood + the other of the external tissues; he noticed that using the word "spina" for both - Pyrus communis from thorns into leafy branches + the cultivated plum + pear trees

Pouchet. F.A. Histoire des sciences naturelles au moyen âge ou Albert le grand et son époque Paris 1853

p297 Albertus. "De vegetabilibus et plantis" found in the earlier edition
Tabula tractatuum parvorum naturalium Alberti Magni, episcopi Ratisbonensis, de ordine praedicatorum. Padua 1519

304. Albert often severely criticised on account of the book "De vegetabilibus herbarum" which really was not his at all

307 He ridiculed the preparation of plants, he very often does not find the abundance of remedies which many authors of the Renaissance time offer

210 Born 1205. Was called "the great" during his own time - the title was imposed on him by the unanimous consent of the schools

215 There is a legend that Albertus was 2
a very stupid boy, & that he was
on the point of abandoning the
monastic life when he was told in order
because in despair of ever being able to learn
enough to become a monk. The Virgin
touched by his fervour & his pious
appeared in glory to him one night, &
asked him whether he would rather
excell in philosophy or theology. Albertus
with true Teutonic shrewdness chose philosophy.
The Virgin granted his request, but being
inwardly wounded at his choice she
added that because he had preferred
profane to divine knowledge he
should fall back before his death
into his first stupidity. This prediction
is said to have been fulfilled. He was
suddenly struck down while surrounded by his students
3 years before his death, & never regained
his intelligence.

218. Albert belonged to the Dominican

Stephan Fellner
Albertus Magnus als Botaniker
Jahres-Bericht des kais. kön. Ober-Gymnasiums zu den Schotten in Wien
Vienna 1881

A botanical work attributed to Aristotle until modern times, but now known to be spurious, is that of Nicolaus von Damascus who lived in the time of Herod the Great & Caesar Augustus & Tiberius. His botanical work is an compilation out of the works of Aristotle.

The ways in which the western countries came to know of botanical science were two:—

(I) 9th & (II) 13th century

I. Rhabanus Magnentius Maurus in the 9th century produced an encyclopaedia containing Aristotelian plant science, which he translated from that of Isidor of Seville, who lived in the 6th & 7th centuries. The source of Isidor's erudition was Plinius (1st century) & the source of whose botanical knowledge was Theophrastus & the pupil of Aristotle.

(II), From the time of Alexander onwards various Greek schools were founded in Syria, to propagate the teachings of Aristotle, whence it spread into Persia. This Greek culture was acquired by the Arabs who learned through the Syrian translators, the Greek

Fellner on Albertus

written in Arabic. These Arabic writings were eventually translated into Latin in this form found their way to western Europe. This happened to the pseudo-Aristotelian botany of Nicolas von Damascus. It was translated from Greek into Syriac, — Syriac into Arabic and into Latin by Alfred de Sarechel, & this was then translated into Greek. (13th cent.) most of the writings of Aristotle were also translated into Latin direct from Greek texts from Constantinople.) This was the book on which Albertus Magnus founded his ~~[illegible]~~ botany.

Albertus b. 1193. in Schwabien studied at Padua. 1223 became Dominican — taught in the schools of his order at Freiburg Strassburg Regensburg, Cologne ("wo auch Thomas von Aquin zu seinen Schülern zählte",) Paris, Cologne again — He was at one time sent to Rome in the interests of the Dominican order, in 1260 he became Bishop of Regensburg. Died 1280

The name of Albertus is associated by tradition with the building of Cologne Cathedral

Albertus was most industrious & his collected works occupy 21 folio vols each of 600 pages.

A critical edition of Albertus' botanical writings:—

Albertus M. de vegetabilibus libri 7 editionem criticam ab E. Meyero coeptam absolvit C. Jessen. Berolini 1867 3

Albertus founded his work on 2 small volumes which he believed to be the work of Aristotle but which should really be attributed to Nicolaus Damascenus. [over fold Aristotle Theophrastus] &
Nicolaus D.'s 7 work was only 2 small vols,
whereas Albertus produced 7.

~~For~~ Albertus' Botany p11–13

~~He~~ divides plants into Trees, Shrubs ~~small trees~~, under-shrubs herbs, fungi but at the same time he mentions that this is illogical, since the types cannot always be sharply distinguished, & the same plant may belong to one or other category at different periods of its life

He ~~also~~ subdivides plants in a way that can be schematically represented so:—

1. Leafless plants ≡ (Mostly & our Cryptogams)
2 Leafy "
   a) Corticate plants (≡ Monocots), this term referring to
   b) Tunicate " (≡ Dicotyls) the wood rings,
      a. herbaceous
      b. woody
      :

He seems to have really understood that there was an anatomical distinction here

Fellner on Albertus — (Description) 4 39

Morphology (p. 6)

A. points out that a bunch of grapes is always developed opposite a leaf, & points out that sometimes a tendril takes its place, & the tendril is to be interpreted as an incomplete bunch of grapes.

Descn of flowers

Albertus describes the flower of the Borrage (Botrago), distinguishing the green calyx (theca) (as he calls it), the corolla, & the five stamens (as not understanding their use). He notes the [illegible] in the Lily there is no the corolla. He points out that in the Lily there is no calyx (theca) but the petals themselves [illegible] a [illegible]. He notes the transition from white to green - [illegible] & its persistence until early fall of the calyx in [illegible], & he even describes [illegible] fruit ripening in the rose. He even describes the rose the mode of detail as the four tiers in the rose the margin of each sepal which is covered by the next sepal is entire whereas the free margin is divided. He notes how evenly whorls of sepals & petals alternate with one another & attributes this to its being the best method of protection.

The different flower forms fall into 3 types (Flower descn)

p. 9

1. Bird form (Aquilegia, Viola, Lamium,
2. Pyramid & bell form
3. Star form (the commonest)

p. 21 He gives a fairly elaborate classn of plants

Albertus ideas on plant-life & the plant-soul may be summed up as follows:—
The plant lives, its life principle is the vegetable soul, whose function confines itself to nourishment, growth, & reproduction. ~~Desire~~ Feeling, desire, sleep, & ~~sex~~ sexuality properly so called, ~~the~~ are ~~un~~known in the plant-world.

p 38

The ancients believed in the four elements fire water, earth air, & 4 principles or elementary qualities warmth cold moisture dryness. ~~The~~ ~~its combinations in pairs of the 4 principles~~ & the 4 elements are 4 principles in combination of pairs at~~...~~ then thus
4 elements arise, fire warm & dry; air warm & dry; water cold & dry, earth cold & dry. Besides these was one fundamental 4th elem the ether,
the earth body in the spaces of the skies
The 4 element qualities were first distinguished 500 or 600 yrs before Christ, & the idea of them ruled all chemical – physiological conceptions for 2000 yrs.
acc. to Aristotle Warmth & cold are active & dryness & damp passive in their nature

Meyer p 8 — Meyer on ῥιζοτόμοι

ῥιζοτόμοι = root-diggers & φαρμακοπῶλαι druggists, made a regular business of collecting & preparing plants for medicine. Theophrastus tells us something about them, & says that some of their directions for gathering medicinal plants seem sensible, but others quite quack. Some It is for instance quite absurd to direct that the Peony should be ~~dug~~ gathered at night, since if a ~~being gathered~~ the fruit is collected in day time & a woodpecker sees the act, ~~his~~ the eyes of the collector are endangered. Also absurd idea that

Theophrastus laughs at these superstitions

When Iris foetidissima is being dug up a honey cake made out of common wheat should be

p 9

thrown upon the earth as ~~pays~~ recompense — Also that if a man is collecting when ~~gathered~~ collected the Hellebore is to be collected the man who is digging it up dies within a year

p 10

Meyer points out that the object of all these pains & penalties was no doubt to keep rivals in of an easy & profitable business.

They sought to get a reputation for a magical control over the action of their drugs by swallowing, or pretending to swallow, large doses of strong drugs

Dauberny on the Vienna Dioscorides

42

The Dioscorides ms at Vienna

C. Daubeny
Lectures on Roman Husbandry.
Oxford 1857
p 231

The Dioscorides ms made for Juliana Anicia daughter of the Emperor Flavius ~~Anicius~~ Anicius, who lived at Constantinople in the end of the 5th century. Both Both brought to Vienna by Busbequius about 1560. The Empress Maria Theresa in the last (18th) century caused copper-plates of the paintings to be taken from the accompanying drawings, but from them only 2 impressions have been allowed to be taken. One is [illegible] (this impression)

Four of the drawings are reproduced in this book. They are remarkably naturalistic, very much more so than any later drawings

Meyer on Dioscorides

143

Dioscorides Anazarbeus.

Meyer Bd II Buch VI p 94 1855.

points out that for many centuries Dioscorides as medicinal plants was held as the last word. It occupied a position analogous to Linnaeus' ~~Natural System~~ Systema Naturae in a later time, but with the difference that Linnaeus work soon became the starting point for further work, whereas the world slumbered on the works of Dioscorides as on a pillow.

The work of the Elder Pliny is closely associated with that of Dioscorides in point of time, but there ends cannot be closely compared. Man of Dioscorides was that of a widely travelled doctor, who devoted himself to the special subject of medicinal plants. Pliny's work was an encyclopaedia of all the knowledge of his time by a man who also wrote clear Latin language & rhetoric & not the language was a scholar, a man of business & the admiral of a fleet. His work contains some fragments of a physiological & philosophical discussion of plant nature, which was almost entirely borrowed from Aristotle & Theophrastus.

p 97 The best authenticated date for Dioscorides seems to be that he was a contemporary of

Meyer on Dioscorides

p. 100

the elder Pliny lived under Nero & Vespasian

There are similarities between the writings of these two authors which ~~appear that to some~~ can only be explained by their both deriving part of their knowledge from the same sources

Dioscorides seems to have written his Materia Medica in 5 books

p. 114.

It must be remembered that Dioscorides was not writing a botany, but a materia medica book in which he only introduced as much botany as served his purpose. He described about 500 plants. Although there is no strictly botanical arrangement, there can be seen the plants in a really natural fashion, e.g. the true Cruciferae, a considerable number of Labiatae, Leguminosae, & Umbelliferae. The descriptions of the plants are so brief & unsatisfactory that only the plants with the most marked characters can be recognised with some certainty. e.g. Asarum & Dipsacus. Carpi records in the part of later works has however led to the recognition of a number of the plants which he refers to, with at least a high degree of probability.

Meyer on Pliny   class   1 45

Caius Plinius Secundus the Elder. Band VI p 118

Born AD 23 died AD. 79

Extraordinary devotion to study. never read without making extracts & was wont to say that no book was so bad but it did not contain anything useful. Counted all time as lost which was not devoted to study

p 128
Like Theophrastus Pliny begins the part of his work devoted to plants with trees, not because he thinks their organisation the highest, but because of their importance to man. As an instance of his arrangement of trees - one book the olive & many more nut bearing trees, the next years berries & fruit-trees, & the myrtle for the use in following on thus the laurel, because it is used in triumphs as the myrtle is in ovations.

p 131
Knowing the manner of life of Pliny & that he took even a walk for waste of time, it is hardly possible to expect much from him in the way of observation of nature.

p 133
Dioscorides ~~describes only certain chosen~~ must fewer plants than Pliny, - the latter (unconsciously) describes the same plants several times under different names, - included plants mentioned by poets, historians

Meyer as Pliny
p 183

2 46

Geographers - Pliny seems to have mentioned
about a thousand species of plants

47

Giacosa Piero. Magistri Salernitani nondum editi. Catalogo ragionato della esposizione di storia della medicina aperta in Torino nel 1898 (with atlas) Torino 1901

Biblioteca Governativa di Lucca, Codice N 236 [Apulejo Platonico]. Trattato "de viribus herbarum"
Pl. 16 shews the legend of the Mandrake
A figure with head replaced by a tuft of leaves & the toes & fingers replaced by roots is being tugged at by a dog whose leash is secured to the ankles

Plate 19. Biblioteca Universitaria di Pavia. Codice 130. E. 31 (211) Picture of Cotyledon umbilicus on the roof of a house. The [illegible] represented about $\frac{2}{3}$ the ~~roof~~ height of the h. e

48

Henslow. G. Medical Works of the Fourteenth Century. London 1899.

Useful for a full glossary of the plant names used in 14th century.

Notes on Garcia ab Horto
& Christobal a Costa
Monardes

Seen in British Museum

Orta, G. de
Colloquios dos simples, e drogas he
cousas medicinais da India ... Goa 1563

50

Aromatum et Simplicium aliquot medicamentorum apud Indos nascentium historia: Primùm quidem Lusitanica lingua per Dialogos conscripta, D. Garcia ab Horto, Proregis Indiæ Medico, auctore. Nunc verò Latino sermone in Epitomen contracta, et ~~icones~~ ad vivum expressis .... Carolo Clusio Atrebate. Antverpiæ, Ex officina Christophori Plantini 1574

Fynes, Lacca, Canella, Tamalapatra, nutmy
Cloves, pepper cocoanuts
many the fynes look as if they were done from the
dry fruits

Botany School Camb.

Aromatum et simplicium aliquot medicamentorum apud Indos nascentium historia: Primùm quidem Lusitanica lingua διαλογικῶς conscripta, à D. Garcia ab horto, Proregis Indiae Medico: Deinde Latino sermone Epitomen contracta, et iconibus ad vivum expressis .... Carolo Clusio Atrebate. Quarta editio.
Antverpiae, Ex officina Plantiniana, Apud Viduam, et Joannem Moretum 1593

Botany School, Cambridge

Brit. Museum

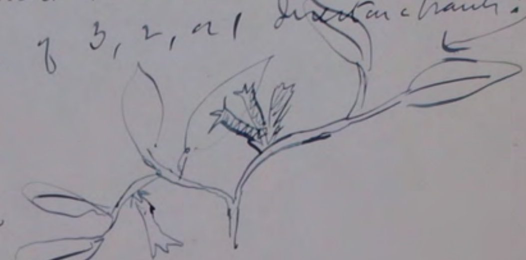
Christophori Acosta, Medici et Chirurgi, Aromatum et medicamentorum in Orientali India nascentium Liber: Plurimum lucis adferens iis quae à Doctore Garcia de Orta in hoc genere scripta sunt: Caroli Clusii Atrebatis operâ ex Hispanico sermone Latinus factus, in Epitomen contractus, et quibusdam notis illustratus. Altera editio Antverpiae, Ex officina Plantiniana, Apud Viduam, et Joannem Moretum 1593

Clusius ded.: Dated Venice 1582
"Christophori A Costa Burgensis in Hispania Medici liber".... Quem superiore anno in Britannica mea peregrinatione amici cuiusdam operâ nactus, non modò avidè percurri, sed utilitatem etiam allaturum censui iis qui Hispanici sermonis ignari sunt si Latinum facerem."

"Icones praeterea, quas ad vivum expressisse passim gloriatus, suis locis insperserat, reieci,

quoniam planè ineptae essent, et nihil minus, quam legitimas stirpes referrent: uti ex unica Caryophyllorum arboris effigie (quam idcirco intuli, ut cum legitima, Garciae adiecta, conferre liceat) quilibet indicare poterit. [See translation on next page]

(~~Acosta's~~ Garcia's fig. shows the cloves grey in a cymose inflorescence while Acosta makes them appear in sessile groups of 3, 2, or 1 [illegible] branch :)



According to Engler Prantl's figure of Jambosa D.C. Garcia is more correct

I ~~ff~~ obtained this book last year during my ~~journey~~ travels in England by the help of a friend, & not content with eagerly perusing it, I decided that it would also be of use to those who do not know Spanish if I were to turn it into Latin — 53

As for the figures which he especially boasts to have drawn from the life which he has inserted [in their proper places] ~~throughout the book~~ I have rejected them since they were drawings ridiculous & were anything rather than representations of the actual ~~genuine~~ plants, as anyone will be able to judge from the single picture of the clove tree which I have inserted in order that it may be possible to compare it with the genuine one by bringing along that Garcia

Miall's Early Naturalists

P71
Christobel Acosta was pupil of Garcias ab horto
In the 17th + 18th cent. Dutch Naturalists began to
publish methodical treatises on the natural history of India +
the Malay archipelago

p 73
Acosta published. Dest. of 3 senseless plants → (Orta was the first A.A.)

p 74
Clusius made one of the occupations of his busy life to translate + publish the narratives of
travellers + collectors in distant lands.

→ Early Naturalists Their Lives + Work (1530-1789)
Macmillan London 1912
L. C. Miall.

Jessen History of Botany p 184 184

Spain & Portugal had much commerce in the 16th cent with the newly discovered parts of the world - to them we owe the first knowledge of Indian ~~botany~~ products.

Garcia d'Orta, - describes the drugs in 1563 after almost 20 years sojourn in India. According to Colmeiro, La botanica ... hispanolusitana p157, Garcia had studied at Alcala & Salamanca & was a teacher at the University of Coimbra & in 1534 went to the East Indies. Orto, Huerta, Horto are different forms in which his name is written!

The same work was republished by the portuguese physician Cristobal Acosta in 1578 with rough figures from nature.

Cristobal Acosta Tractado de las drogas y medicinas de las Indias Orientales

Burgos 1578. Dalechamps Historia plantarum

The figures are copied in Dalechamps

Translated by Clusius into Latin & published under his "Exotica"

Meyer's History of Botany. Vol IV p 357

Car. Clusii ... exoticorum libri decem ... 1605 containing a translation of Garcia ab Horto's work & of that of Christophorus a Costa

I have verified the these are illustrations from a Costa with references to Acosta & Garcia ~~at end~~ in Appendix to Dalechamps Vol II 1586.

Jayne, K. G. Vasco da Gama & his successors 1460—1580. London 1910.

p1 "Portugal at the beginning of the sixteenth century had... became the pioneer of intercourse between Europe & the Far East."

p 5. Printing introduced into Portugal only 10 years after Caxton set up his press at Westminster.

Vasco da Gama found the sea route to India 1498 anny at Calicut on the Malabar coast of India

Goa was taken by Albuquerque 1510

p106

Spices from the east were immensely valuable. "Even in the Orient, spices were deemed a gift worthy to be offered by one prince to another." In 1515 Albuquerque's envoys to Ismail Shah took pepper, ginger, cinnamon, cloves, sugar & cardamoms as presents for their master.

The slaves (2), gold (1), ivory from Africa by the Portuguese merchants were "lucrative commodities, but not comparable with drugs & spices."

p132

The true China orange was first acclimated in Portugal about 1548 & D. João de Castro is supposed to have introduced it.

Copernicus seems an error. Acc to my biog. dict he was born in 1473 & the other events of his life won't fit with the 1490 date

p188

"Goa Dourada" Golden Goa — the capital of Portuguese India

p269

Garcia de Orta was an associate of Camões

G. d. O. born about 1490, about the same time as Paracelsus & Copernicus*. Studied medicine at the Spanish Universities of Alcalá de Henares & Salamanca. Lectured at Lisbon University 1532 to 1534. This was time of great controversy in medicine. (1) Arabists Tradition demand for mediaeval Arabian schools, when Avicenna & Abu Bakr had interpreted & enlarged the teachings of Aristotle & his forerunners (2) The new knowledge derived by ~~reproduction~~ retranslation of the works of Hippocrates, Galen etc from the originals "Hellenists"

Garcia d. O. distrusted the Hellenists who seemed to him to have gone back to the rudiments from which Arabian science had started

Practised in India with great success & amassed a fortune in huge fees for consultations Rajas & Amirs.

Returned to Goa after nearly 30 years. The "Colloquies" introduced Nux Vomica* to the pharmacopoeia & contained the 1st account of the symptoms of Asiatic cholera.

D. Braga declares that the Colloquies & Camões "The Lusiads" must be classed together as the two supreme expressions of the Portuguese genius in science & in literature respectively

p247 The Lusiads "a dream-volume & expression of the spirit of maritime adventure"

* I cannot confirm this A.A.

1.58

Colloques on the Simples & Drugs of India by Garcia da Orta new edition (Lisbon, 1895) edited & annotated by the Conde de Ficalho Translated with an introduction & index by Sir Clements Markham, K.C.B., F.R.S. London 1913

Introduction

O. born about 1490 at Elvas, so famous for its plums. Studied at Salamanca & Alcala de Henares in Spain from 1515 to 1525. 1532–1534 lecturer at Lisbon University. In 1534 undertook to go to India as a physician with Martin Affonso de Sousa. The fleet of 5 ships left the Tagus on March 12 1534 reached Goa in September.

He had a house & garden at Goa & in 1534 was granted a long lease of the Island of Bombay which he rented.

At the time the Colloquies were finished Camoens was at Goa writing the Lusiad & was an intimate friend of O. He spoke enthusiastically of O. in an address to the Viceroy

"Colloquios dos simples e drogas he cousas medicinais da India compostos pello Doutor Garcia da Orta" 1563

Full of typographical errors. 3rd book even printed in Hebrew characters. The first a Catechism by St. Francis Xavier 1557 & the 2nd a "Compendio espiritual" by Dr. Pereira, first Archbishop of Goa 1561

Introduction and
Clusius' resumé of 1567; very diff. from the original

Dr. Cuano is imaginary person & represents the erudite man of the schools & D. Orta the traveller observer & practical man.

O. is believed to have died at Goa about 1570 having practised in India for 36 years

Acosta, Christoval
Trata de las drogas y medicands de las Indias Orientales con sus plantas (Burgos 1578)
46 chaps. Illustrated. A few plants are included which are not in Orta.

Introduction followed by List of Plants giving the names used by Orta, Acosta & the modern scientific names. It would have been well to give the authority of each of the modern names, but this is only done in a few cases.

p 9 Hist. Abs. per of Portugal
Alves Orta says an hour's run from Socotra to Ormuz, thence in Persian Barcora, thence to Aden & Goda, thence by land in Camel Caravans to Suez & the Alexandria, thence by Venetian galleys to Venice, thence to Portugal

p 10
The Arabian Persian & Turkish physicians knew the works of Avicenna, Hypocras, Galen Aristotle & Plato

p13

Orta reproves Ruano for being so much attached to the modern authors who in order to praise the Greeks speak evil of the Arabian physicians

Amber

O. has no better explanation of its origin to offer than that it comes from a fountain issuing from the bottom of the sea

p37, 38

Orta comments on the delight of the Indians in scents. The kings have the floors of their houses strewn with scented flowers and the labourers will buy scents to anoint their bodies instead of necessary food

~~pp~~ 81 - allegory to effects of hemp eating

p60
Orta. "Do not try to frighten me with Dioscorides or Galen, because I merely speak the truth and say what I know."

p75, 76
names of chessmen in India where it is said to have been invented.

Ruano p 94, 95 speaks of "a barbarous king" of China: O. corrects this idea, tells of the worked silver & copper, the silk gold musk pearls mercury vermilion & "porcelain twice the value of silver" that come from China.

Orta shamelessly denies that the fantastic tales of Dioscorides do not know; a medicine is a reason against using it, — "our knowledge is a very small part of that we are ignorant of."

"Please God we will always continue to search for & enquire about medicines."

p125

O. "For me the testimony of an eye-witness is worth more than that of all the physicians, & all the fables of medicine who wrote on false information."

p 135 ~~+136~~ +136. An account of Ceylon "the most fruit bearing & best island in the world."

An account of the Elephant, the Betel nut

mention of & sensitive herb (which appears to be Biophytum sensitivum Dec. (Oxalidaceae) "The leaves resemble a polypody frond, the flowers are yellow, & neither Dioscorides nor Pliny mention such a plant."

p234

p275

Orta's feeling of beauty. Says the nutmeg tree "is the most beautiful sight in the world when the trees are loaded."

p. 275

Orta maintains that the Greeks did not know the mace trees, they knew the nutmeg, but Ruano protests "Well, Schapio says that the Greeks knew these medicines."

Orta "That was because he was afraid to say anything against

the Greeks. Do not be surprised at that because even I, when in Spain, did not dare to say anything against Galen or against the Greeks. Yet when seen in the proper light, are not strange that medicines should be known in one age & not in another, new things being constantly found."

p 313

Otto "Galen ... whose shoe-latchet I am not worthy to unloose".

p 333

Account of Opium being obtained by cutting poppy head

p 337

Account of mongoose fighting & killing snakes.

Tamarinds p. 428

O. The tamarinds sleep at night & protects from the cold by the leaves, ... in the day they open & come outside the leaves." Tamarindus indica Linn.

~~Tamarindus~~

p. 436

O. The Greeks "filled their books as their own sweet wills, as is shown by what they wrote of the things of India, which are so fabulous. I assume that as regards India the Arabs are better authorities even less than the Greeks."

p. 440

O. Poems on the art Serapion thought that there could not be a medicine of which the Greeks had not written

On p 444, the earliest description of the Cave of Elephanta

The following among many others come under discussion: 63 6

Aloes
Amber
"Bangue" (Cannabis Indica
cloves, Cocoanut tree, manna,
Datura, mace & nutmegs, opium, pepper,
rhubarb, sandalwood, [illegible], ~~manna~~,
ginger, assafoetida, betel, bananas, cinnamon
mango, mangosteen, melon, camphor

= List of plants giving Orta's name, Acosta's name & the scientific name
(This however have been ignorant of the authority had drugs been given
Account of the money & weights measures mentioned
Index of persons mentioned with biographical notes
" " drugs simples & of plant names

The reproductions of the woodcuts would have looked better on "Japan" not a slightly rough surface. The initial letters which are white on a black background do not harmonize well with the repros of the wood blocks

Chusing diff. fragil

Dr. Ruano.

63 A.

Markham p xi

Camoens addressed a sonnet to him of whom to conclusion [illegible] has been translated by Sir Clements Markham

Answer: "Longer of yore by the muses of Ganges & Ind, full of learning, is of years, in all that is known of the fine healing art, did Chiron meet bow before thee.

p xiv Aestus was a native of Burgos

Other [illegible] afferent [illegible] veins, [illegible] intervals of Burgos [illegible] to [illegible] veins [illegible]

p 436

I affirm that as regards India the objects of Arabs [illegible] better authorities even less than [illegible]

Biophytum sensitivum
an Oxalid

p 2x

p 275. Orta in India would be all of him: man of independent living in Spain – done.

" p 275 " even I, then – Spain, did not – dare to say anything against Galen or against the Greeks

p 29

The Castilians whatever affairs is to be praised, of they they fill the mouth with "Western Indies"; but not only are your lands not – Indies, they were never known to the ancients, nor was Brazil.... But – this, an India has been called so for the time of Alexander down to this day.

East West Indies

p 313 Galen "whose shoe-latchets I am not worthy to unloose"

Sleep movement of Tamarind leaves p 428

Later notes 1936 for V. L. copy Lab. 6. 91. 338

My plate of Pimienta not so good

PLXX

Trattato di Cristoforo Acosta Africano Medico, et Chirurgo della Historia, Natura, et Virtu delle Droghe Medicinali, et altri Semplici rarissimi, che vengono portati dalle Indie Orientali in Europa, Con le Figure delle Piante ritratte, et disegnate dal vivo poste a' luoghi proprii. Nuovamente recato dalla Spagnuola nella nostra Lingua. ... In Venetia, 1585. Presso à Francesco Ziletti

This has ~~the~~ wood cuts reversed as compared with Markham's edn., & I suppose reversed as compared with the original edn.

A number of wood cuts of plants which are not in Orta e.g. Sargasso (Gulf weed) & Ananas Brave (Pineapple).

Camb. Univ. Lib. [K. 8.51.]

To be Published Shortly, under the Patronage of the India Office.

COLLOQUIES

ON THE

SIMPLES & DRUGS OF INDIA

BY

GARCIA DA ORTA

1563

TRANSLATED FROM THE PORTUGUESE

BY

SIR CLEMENTS R. MARKHAM, K.C.B.

With 25 Illustrations reproduced from the quaint engravings in "Historia Natural y Morale de las Indias," por Jos. de Acosta, 1590.

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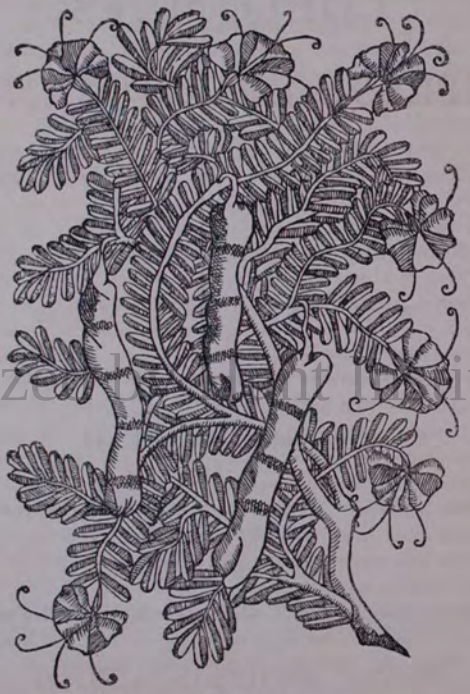

THE TAMARIND.

Specimen of the Illustrations, reproduced from Acosta.

THE celebrated *Coloquios dos Simples e Drogas da India* of Garcia da Orta were first published at Goa in 1563. The author went out to India in 1534 as physician to his feudal lord, Dom Martin da Sousa, afterwards Governor of Goa, and remained there until his death in 1570. Travelling extensively along the western seaboard of India and in Ceylon, Garcia gathered botanical and pharmaceutical knowledge at first hand wherever he went. He formed a large "physic garden" in Goa and another in Bombay, on the site now occupied by the Victoria Gardens. The *Colloquies* was in all probability the first European book printed in India; it contains the first descriptions of many Indian plants now in widespread medical use, and of their application to such diseases as cholera and dysentery. Clusius in his *Aromatum Historia* made a short, unsatisfactory *précis*, and the Italian and French translations are very inferior to the original. Sir Clements Markham has been engaged on his translation from the standard Portuguese edition, at Lisbon, for the greater part of three years. On the proposal of Sir George Birdwood the publication is to be under the patronage of the Secretary of State for India. The work has more than a scientific interest, for it is enlivened by entertaining anecdotes of the manners and customs of the people among whom Garcia da Orta carried on his researches.

This famous book, of which this is the first English translation, will be found to appeal not only to the Botanist and Pharmacist, but also to the many students of Indian subjects, as well as the lover of *Belles Lettres*, who will be agreeably pleased by its quaint and curious style, so reminiscent of the Dialogues in Walton's *Angler*.

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Orta, Garcia da. — Colloquies on the Simples & Drugs of India by Garcia da Orta. New edition (Lisbon, 1895) edited & annotated by the Conde de Ficalho, translated with an introduction & index by Sir Clements Markham. London Henry Sotheran & Co. XXI + 509 pp, 26 pl. 1913 42 shillings net.

In the sixteenth century the kingdom of Portugal[1] formed the connecting link between Europe & India. Vasco da Gama had reached Calicut on the Malabar coast by the sea route in 1498 & from this time onwards, for a hundred years or more, commerce with the East was almost entirely in the hands of his countrymen. Goa Dourada — "Golden Goa" — fell to Albuquerque in 1510 & became the capital of Portuguese India. To this city, in 1534, the physician Garcia da Orta set sail from the Tagus, reaching India after a voyage lasting seven months. Garcia, who was then over forty, had been born about the year 1490 at Elvas, famous for its plums, so that he was almost precisely contemporary with two other men of note, — Cæsalpinus & Paracelsus. He had studied medicine at the Spanish universities &

1. For an interesting account of the Portuguese travellers & explorers of the renaissance period & full references to the literature of the subject see Jayne, K.G. Vasco da Gama & his Successors. 1460–1580. London 1910.

Alcalá de Henares & Salamanca & afterwards lectured at Lisbon University. In India he practised with great success as a physician, numbering among his patients Europeans, Eurasians & natives, & amassing a fortune. He had a house & garden at Goa, & here, after nearly thirty years experience in the use of eastern drugs, he wrote the famous work "Colloquios dos simples, e drogas he cousas medicinais da India". It was published at Goa in 1563 & was thus one of the first European books to be printed in India. Orta's countrymen were early in the field as regards the art of printing, which was introduced into Portugal only ten years after Caxton had set up his press in Westminster. The "Colloquios" has since been translated into other languages & two new editions in Portuguese appeared in the nineteenth century, but up to the present, in spite of the close connexion between Britain & India, it has never been issued in English. This want has recently been supplied by the appearance of the translation by Sir Clements Markham which is the subject of the present review. All who are interested in the botany & pharmacy of India must feel grateful to the translator who has brought the classic work within the reach of the many who are ignorant of Portuguese.

Garcia da Orta's "Colloquies" have been said to represent the supreme expression of the Portuguese genius in science & thus to occupy a corresponding

position to that held by, in literature, by the "Lusiads" of Camoens. This estimate is probably too enthusiastic, but it seems at least possible to class these works together as being both alike inspired by that zeal for travel & exploration which was the finest characteristic of sixteenth-century Portugal. Camoens was an intimate friend of Orta's, & at the time that the "Colloquies" were completed he was also at Goa writing the "Lusiads". The relation in time of the "Colloquies" to general ~~Euro~~ European culture is perhaps best realised if we remember that they were published the year before the birth of Shakespeare & Galileo.

The dialogue form in which the book is written gives Orta an excellent opportunity of illustrating the famous controversy which was then raging in the medical world. Sir Clements Markham scarcely seems to have fully grasped the significance of the dialogue when he tells us that the two interlocutors, whom Orta calls respectively by his own name & by the name of "Dr. Ruano", represent the traveller & observer as opposed to the erudite man of the schools. They represent, rather, the "Arabist" as opposed to the "Hellenist". The former accepted the teachings of Aristotle & other classical authors as explained ~~emended~~ corrected & amplified by Avicenna & the medieval

Arab physicians, while the "Hellenists" ignored the
experience of all intermediate generations & regarded the
~~words~~ dicta of the Greek writers as the last word upon the
arts of healing. Many passages might be quoted
to show that, in the dialogue, Orta represents the
Arabist side of the controversy. He says, for instance:
"I assure you that as regards India the Arabs are better
authorities ~~&~~ even less than the Greeks," while in another place,
he reproves Ruano for being so much attached to the
modern authors who in order to praise the Greeks speak
evil of the Arabian physicians. It is true that Orta
was by no means lacking in admiration for the fathers of medicine
he speaks of Galen ... whose shoe latchet I am not worthy
to unloose" ___ but he firmly declines to accept their
authority as unimpeachable. "Do not try to frighten
me" he cries with Democrides or Galen, because I
merely speak the truth & say what I know." He
strenuously denies that the fact that these early masters
did not know of a ~~medicine~~ drug is a reason against
using it: "our knowledge" he says "is a very small part of
what we are ignorant of", & "Please God we will
always continue to search for & enquire about medicines".
But it needed some courage to be an Arabist is
illustrated in the Thirty-second Colloquy. Orta maintains

Nor the Greeks did not know the mace though they were acquainted with the nutmeg, but Ruano insists that Serapio says that the Greeks knew these medicines. Orta replies, "That was because he was afraid to say anything against the Greeks. Do not be surprised at that because even I, when in Spain, did not dare to say anything against Galen or against the Greeks."

The intention of the "Colloquies" is primarily medical — their greater value from this standpoint lies, perhaps, in the fact that they include the first account of the symptoms & treatment of Asiatic cholera. The lay reader will, however, find much that is of interest in Orta's account of botanical drugs, spices, lightened by picturesque touches such as a description of a jewel thief from a half-catatonic state the Lord has drugged with Datura. * In modern life spices are such a relatively unimportant item that it is difficult to realize the preeminent place held in earlier days by the trade in these commodities. Even the bodies of slaves, ivory & gold brought from Africa by the Portuguese merchants are said to have been not comparable in value with drugs & spices, while in the East steely pepper ginger cinnamon & cloves figured among gifts offered by one potentate to another.

* Among the products discussed are cloves, cocoanuts, manna, datura, mace & nutmegs, opium, pepper, myrobalans, sandal wood, Ceylon cinnamon, ginger, asafoetida, betel, bananas, cinnamon, mangoes, melons & camphor.

§ Among the small amount of purely botanical information in the "Colloquies" ~~we find~~ there is a brief description of a ~~tree~~ plant with sensitive leaves which appears to be Biophytum sensitivum Dec., & also a mention of the nyctitropism of the Tamarind. All kinds of miscellaneous lore, not directly connected with the main subject, is found in Orta's work. He gives information for instance about the elephant, about the mongoose & about the names of the Indian chessmen. He touches on various native customs, noticing for instance, the delight of the Indians in scents & their custom of having the floors of their houses strewn with fragrant blossoms, while labourers at busy seasons anoint their bodies rather than necessary food. He puts into Ruano's mouth a reference to the "barbarous" king of China in order that he may correct his ignorance & discourse of the worked silver & copper, the silk, gold, musk, pearls, mercury, vermilion & "porcelain ware" the value of silver "that come from China.

Sir Clements Markham has translated Garcia's work in an easy colloquial style which is well suited to the purpose. The book includes an explanation of the ~~[illegible]~~ value of the money & weights

measures ~~of the period, used at the time, etc.~~, & a useful index of drugs & plant-names, & of persons mentioned, with biographical notes. The list of the plant-names with their modern scientific equivalents would have been more satisfactory if the authority had always been given in the case of the modern name.

The reproductions of wood-cuts which illustrate the book are not taken from Orta's original work which was unillustrated but from a volume published at Burgos by Christoval Acosta in 1578, under the title of "Trata de las drogas y medicinas de las Indias Orientales con sus plantas", which was practically the Spanish translation of Orta's work somewhat altered & including a few additional plants. The wood cuts in question are quaint & decorative, but in most cases they are inferior botanically to the best herbal illustrations of the period. It is rather curious that they should have been resuscitated by Markham a twentieth-century editor of Orta's book, for Charles de l'Ecluse, who published a Latin translation from Acosta in the sixteenth century discarded these illustrations as quite unworthy! In the dedication of his translation he writes "As for the figures which the [Acosta] repeatedly boasts to have drawn from the

life ... I have rejected them since they were obviously ridiculous + were anything rather than representations of the actual plants." He reproduces one, however, the picture of a tree bearing cloves, in order that the reader may judge for himself of their inaccuracy. Acosta's despised pictures have, however, considerable charm, which, unfortunately, they lose to some degree when reproduced on the very smooth-faced paper employed in the present edition. The artistic ~~value~~ utility of the book would also have been enhanced if the ornamented initial letters had been chosen with more regard for their harmony with the old wood-cuts. But these ~~cuts~~ are petty ~~to~~ hypercritical ~~criticisms~~, & do not detract from our admiration of the work which Dr Clements Markham has done in rendering accessible to English readers a document of permanent historic value.

Agnes Arber
(Cambridge)

Cyp. J Garcia ab Orta's
"Dell'historia dei semplici
aromati, et altre cose; che vengono
portate dall'Indie Orientali ... Parte
prima. Dursa i libri IIII ... et due altri
libri parimente di quelle cose che si
portano dell'Indie Occidentali; di
Nicolo Monardes Medico di Seviglia.
.. hradotti ... da M. Annibale Briganti
... Venetia 1589.

Seen & one by P.D. Turner 1918.
The earliest Italian translation is the
B.M. seems (Lobe 1626 (see next
page J notes)

Due libri dell'historia dei semplici,
aromati, et altre cose, che vengono portate
dall'Indie orientali, pertinenti alla medicina,
di Don Garzia dall'horto ... et due altri
libri parimente di quelle che si portano
dall'Indie Occidentali, di ~~M~~ Nicolò Monardes,
medico di Siviglia x-x In Venetia. 1626

[BM 7509. C. 25.]

[Histoire des Drogues, espiceries, et de certains
medicamens simples, qui naissent és
BM 957. m. 25 Indes et en l'Amerique, divisé en deux
~~parties~~. La premiere comprise en quatre
livres: les deux premiers de M Garcie
du Jardin, le troisiesme de M Christophle
de la Coste, et le quatriesme de l'Histoire
du Baulme ~~de~~ adioustée de
nouveau en ceste seconde edition: où il
est prouvé, que ~~tous~~ nous avons le vray
Baulme d'Arabe, contre l'opinion
des anciens et modernes.

La seconde composée de deux livres
de maistre Nicolas Monard,
traictant de ce qui nous est apporté
de l'Amerique. x-x

A LYON 1619

P 437 Monard has the tobacco figure [illegible] leaf, but unseen scattered separated
+ p 64. Sarsaparilla

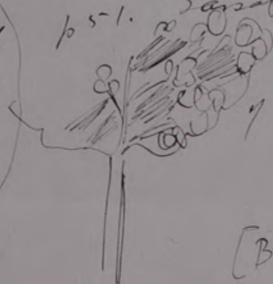
77

Monardes

Primera y segunda y tercera partes de la historia medicinal de las cosas que se traen de nuestras Indias Occidentales que sirven en Medicina. Tratado de la Piedra Bezaar, y de la yerva Escuerçonera .... Hechos por el Doctor Monardes Medico de Sevilla ... En Sevilla. ... 1574.

(Apparently 1st ed. of 3rd part + 2nd ed. of 1st 2 parts)

p 5-1. Sassafras picture



Branches & fruits of leaves indicated with shading filling up between

[BM 546.f.5]
~~quarto~~ 8vo

Dos libros, el uno que trata de todas las cosas que traen de nuestras Indias Occidentales, que sirven al uso de la Medicina, y de la yerva Escuerçonera .... Compuestos por el Doctor Nicoloso de Monardes Medico de Sevilla

1st ed.

Sevilla 1569

(small 8° no frontispiece portrait of Monardes

BM 546.c.10

(In Italian were editions 1582 & 1589 Venice)

Monardes

Segunda parte del libro, de las cosas que se .... Monardes 1571

(Seville)

very small 8° or duodecimo

78

Seal, B. The Positive Sciences of the Ancient Hindus. VIII + 295 pp London 1915

V. L [Bb. 20.198]

It is not possible to assign dates to the original sources from which the materials here are drawn. But it mainly belongs to the millennium 500 BC – 500 AD [This impossibility for this book makes me recall the dates the author is lately about. It would be great in quoting assignment "early Hindu ideas" A.A.]

Chapter IV

Hindu ideas about plants & plant-life.

Gives several ancient classifications e.g.

(1) Trees bearing fruit without flowers e.g. Ficus glomerata – F. infectoria

(2) " " flowers as well as fruit e.g. Mango tree

(3) Herbs that are withered after fructification (A) Annuals or perennials bearing fruit e.g. Paddy, linseed & pulses

(B) Plants that wither after maturing without fructification e.g. mushrooms

(4) Other herbs with spreading stems (A) Creepers

(B) Herbs with succulent or cactaceous stems, or shrubs.

The Bamboo was recognised by the ancient Hindus to be a giant grass. & the Palms were classed as "Tree grasses".

Dharmottara the Buddhist scholar, noticed the phenomenon of sleep in certain plants (contraction of the leaves)

Udayana notices in plants the phenomena of life, death, sleep, waking, disease, drugging, transmission of specific characters by means of ova, movement towards that is favourable + away from that is unfavourable.

~~Prof~~ Gunaratna notices the sensitiveness to touch of plants like the <u>Mimosa pudica</u>.

The Hindu Scriptures teach that plants have a sort of dormant + latent consciousness, + are capable of pleasure + pain. Chakrapâni notes in the Bhânumati that the consciousness of plants is a sort of stupefied (darkened + comatose) consciousness.

The Mahâbhârata adds that plants are sensitive to heat + cold, + the sound of thunder etc, as well as to odours both pleasant + unpleasant.

The idea of sex in plants was altogether vague + erroneous.

Botany in the Low Countries

80

Plantin

Clusius

Dodoens

L'Obel.

Degeorge on Plantin 81

Degeorge, Léon.
La Maison Plantin d'Anvers.
Brussels 1878

Towards 1550 Plantin & his wife Jeanne Rivière settled at Antwerp, & later they where the wife sold linen & the old books.

Readers Press correctors were then most important people Plantin had the art of getting first rate people to work with him.

p.16 Plantin a native of Touraine

The vine covering the facade of the inner court is said to have been planted by Plantin or some member of his family

Blades on Plantin

82

The Plantin Museum. W Blades
Macmillan's Magazine. Vol 38. p 282. 1878

One of Plantin's daughters married John Moretus the father's chief assistant & successor; from him the business descended through seven generations of printers to Edward Joseph Moretus, the last of his race, who transferred it to the city of Antwerp.

Wages books showing the weekly earnings of compositors, pressmen, engravers & book binds over a period of three centuries.

The Duke of Savoy Piedmont tried to persuade Plantin to come to Turin, promising him new ~~premises~~ & offering his own terms so extensive printing works, & regard money. But he declined.

Plantin's own desk and the cases for brass ready stamps still remain.

Did not find this in Degeorge

Morren, E.

Charles de l'Escluse, sa vie et ses oeuvres. 1526-1609
Bull. de la Féd. des Sociétés d'Horticulture de Belgique. ~~1876~~ 1875 for 1874. Liège

Ref. B.D. Jackson Jrn Bot 1875
Born at Arras in Artois & died at Leyden - Studied at University of Louvain & at Montpellier
He wished to hear & know Melanchthon, who personified the ideas of reconciliation between Luther & the pope. He became much attached to the reformed faith & adhered to it in spite of the loss of his paternal & the martyrdom of some members of his family.

Guillaume Rondelet at the University of Montpellier taught Bauhin, Dalechamp, Charles de l'Escluse, Matthias de l'Obel, Pierre Pena, Jean Bauhin

Ref. Natura Stirpium Jean Ruel
In 1534 appeared the Commentaries of Matthiolus on Dioscorides, l'Histoire générale des plantes of Jaques Dalechamps & the Dodonaeus Cruydt-boeck. This flemish work had a great vogue, so de l'Escluse resolved to translate it into French, under name of L'Histoire des plantes. It is this edn (printed by Jan Vander Loe at Antwerp) which was translated by Lyte. All Clusius' later works were produced by Christopher Plantin

p14
With 2 pupils Clusius travelled in Spain & Portugal & brought back 200 new sp. of plants. He went through much fatigue - some serious accidents

Trevoromus (?) says Arras in French Netherlands.

83

Antwerp Plantin 1576 Morren on Clusius 2 84

The first work which Clusius claimed as original was his Flor. Spain. "Rariorum aliquot stirpium per Hispanias observatarum Historia". The drawings for this were new, but some were used later in the works of Dodonaeus & Lobel, & even in waiting for the publication of the "Rariorum" for which they were prepared were used first for Dodoens

1583. Antwerp. Plantin. Flora of Austria & Hungary "Rariorum aliquot stirpium per Pannoniam, Austriam et vicinas -----.

These 2 works were reprinted with additional matter in the Rariorum Plantarum Historia, Joan. Moretus. Plantin press. 1601

In this the species of the same genus are grouped together, but beyond this there is almost no arrangement.

p40 Clusius introduced the potato into Germany & Austria. (It was brought from Santa Fe into England by John Hawkins in 1563)

p41 In the Leyden Library is a ms of Clusius (mss 15 Tabulae pictae mss VI Fr 12 A in folio) with 82 water colour pictures of fungi

" Tremendous botanical correspondence. He was a botanical centre for Europe

p52. Unhappy life. Delicate constitution. Bachelor. Was deprived of his patrimony & was a victim to his religious convictions. One sees him incessantly attacked

himself as tutor to some great family, unto
translate for Rondelet, for Dodonaeus, especially
for his friend Plantin, finally accepting
employment at the Court of Vienna. The
University of Leyden however made him a
professor in the latter part of his life. He had
serenity of spirit, candour of heart & an
indefatigable intellectual activity. He was
very well informed, — knew Latin, Greek, Italian,
Flemish, German, Spanish, Law, philosophy,
history, geography, zoology, mineralogy, numismatics
etc. He grew the summer herbary, & the
winter unity.

p. 54. His [illegible] urged work helps to the Low
[illegible] of the 16th century. p. 55 As his botanic
[illegible] he was [illegible] of Dodoens
he can consider him a disciple of D.

Clusius was not a physician. He studied the
plants for themselves (uses or however neglects their
properties) but he was not preoccupied with the
medical side. He was preeminently an observer &
Cowan reckoned that he added more than 600
to the number of known species. p. 56 He is one of
the founders of descriptive botany, but he was
weak in the synthetic spirit

86

Christ, Hermann. Die illustrierte spanische Flora des Carl Clusius vom Jahre 1576. Österreich. bot. Zeitschr. 1912

Roth

Bot. Zeit. 1859 Brunfels

Bot Centralbl. 1858 pp 265–271
313–8 344–7

Meerbeck on Dodoens 87 4

Meerbeck, P. J. van. Recherches historiques et critiques sur la vie et les ouvrages de Rembert Dodoens (Dodonaeus). Malines. 1841

Rembert Dodoens born at Malines 1517 - Studied in University of Louvain. Visited the Universities of medical schools of France Italy Germany. Became a physician. Obtained the use of Fuchs' wood blocks for his herbal*. The book itself much delayed only came out in 1554, through the plates of the first 3 books were a synonymy were published three years before. (* Meyer Geschichte der Botanik Konigsberg 1854 the blocks used were those of the Ottavo ed. of Fuchs

p26
1557. Clusius published a translation of Dodoens Herbal into French under the title of Histoire des Plantes. This translation was supervised & added to by Dodoens himself.

p35
The last Dutch edition of the Herbal supervised & augmented by the author was printed by Vanderloe in 1563, under the first title "Cruyde-boeck" Vanderloe then started to use Fuchs' blocks, & it is probable that they were acquired [illegible] by the printer of Dodoens in England. This circumstance might have made things difficult for Dodoens, & he had not found in the celebrated printer of Antwerp, Christoffle Plantyn, "un homme qui ne reculait devant aucune dépense, pour donner aux ouvrages qui sortaient de ses presses toute la perfection et le mérite dont ils étaient susceptibles." Plantyn undertook to have fresh blocks engraved for the

Meerbeck on Dodoens

man modifi
Latin translation of Dodoens Herbal which he was to publish, & Dodoens engaged to supply fresh plants for the artists & to supervise their labour. The work proceeded slowly — was published in parts. It was finally ~~produced~~ finished in 1583 ~~& produced in one volume~~ (in which the parts already produced you reappeared) as the Stirpium historiae pemptades sex sive libri triginta.

p 94
Clusius & Lobel were later than Dodoens & profited by his work

p 96.
Blocks of Dodoens Herbal — "Cruydeb~~oek~~eck"
Made use of Fuchs' wood blocks, which Vanderloe had acquired; also 200 new blocks in the first edition & about 133 more new ones in succeeding editions, & 6 from borrowed from Matthiolus & 2 from Andreas Lacuna.
The text is not a translation of Fuchs though, he took Fuchs as a model for the order of description of each plant*. He indicates the localities & times of flowering for the Low Countries, things which clearly were not taken from Fuchs.
Fuchs used the alphabetical arrangement.
Dodoens grouped his plants first according to their uses — properties — then according to their forms & affinities.
~~R~~ Dodoens final masterpiece "Stirpium Historiae pemptades sex 1583, — the very much larger part an original figures done under Dodoens eye, — some are borrowed from Clusius. Lobel, because Plantyn who published the works of both these botanists bore the expense of

[* Have verified this by comparing Dodoens & Fuchs A.A.]

their blocks, & had an agreement with them 3
authors that they should make use of one another's
blocks. Certain figures are also taken from the
famous Dioscorides ms. at Vienna.

In the Pemptades the botanist in Dodoens was stronger
the physician less in evidence than in the earlier work.

p116

Dodoens' general principles of classn

(1) The consideration of the properties & uses of plants, which caused him to form groups of scented plants & plants remarkable in their flowers; another of medicinal & poisonous plants; another of cereals & food plants.

(2) The consideration of their general conformation, which led him to establish class of shrubs & trees, the group of umbelliferae, & the group of climbing plants

(3) The consideration of habitat, which led him to establish the group of aquatic & marsh plants

Coming to more detailed classn. we find (within his large classes he grouped plants by their likenesses &) that in many cases he grouped together genera which we should now regard as members of the same natural order, & species which we should regard as belonging to one genus. Examples of this too numerous to give. May mention genera of Gramineae, Geraniaceae, Hypericaceae, Plantaginaceae, Umbelliferae + Cruciferae, Campanulaceae, Ranunculaceae, Caryophyllaceae, as being described together. In the book in which he describes the bulbous plants remarkable for their flowers he arrives at a particularly natural + with the isolated addition of Nigella, Saxifraga granulata etc., owing to their superficial resemblance to Umbelliferae.)

(i.e. in which the Butterbean is described)

Meerbeck on Dodoens

grasping, describing in succession members of the Liliaceae, ~~Asphodelaceae~~ Iridaceae, Amaryllidaceae, & Orchidaceae.

In the first book of the first pemptade we get the general principles of botany discussed. He divides plants into trees, shrubs, undershrubs, herbaceous plants. He mentions however that this class^n is not absolute, since a plant through cultivation or for some other reason may pass from the condition of one class to that of another e.g. Ricinus which is a tree in some countries, but a herbaceous annual with us.

The sex of flowers & the function of the stamens entirely escaped him & when he speaks of ♂ and ♀ plants he is only using the terms as descriptive of their general appearance.

[Dodoens saw those from the inventory of the first of Schoener & use the name]

Meyer on Dodoens class.

91

Meyer Geschichte der Botanik
Band XV p347

Dodoens

It is not easy to exactly to appraise the service which Dodoens rendered to botany. Between him & his two younger friends & fellow countrymen, Clusius & Lobelius there was so intimate a friendship that they imparted their observations to one another & permitted the use of them in one another's books. Their works were all published by Plantyn & many of the same figures reappear

In his class. he laid as much stress on their medical properties of plants as on their structure.

(It is possible that it may be said for this way of ... ... from the standpoint that appears at present, since a recent writer in the Bio-Chemical Journal has that certain orders genera or groups of plants are characterised by the presence of characteristic chemical compounds, which often determine the usefulness of the plant to man (Muriel Wheldale. The Chemical Differentiation of Species. Bio-Chemical Journal. VIII. No. 10 1914 p445))

class.

Ludovic Legré. La Botanique en Provence au XVIe siècle. Pierre Pena et Matthias de Lobel. Marseille 1899

Lobel & Pena probably went to England to live under the peaceful sway of Queen Elizabeth, who was so favourable to the arts & sciences.

The Adversaria was published in London.

The dedication contains a hyperbolic praise of Queen Elizabeth

It is believed that Pena was of no importance botanically compared with Lobel & that he finally left Botany altogether in favour of medicine

The Observations were [illegible] a supplement to the Adversaria

Morren. E. dest

93 1

Mathias de l'Obel, sa vie et ses ~~de~~ œuvres
1538–1616
Extrait du Bull. de la Fédération des Soc.
d'hort. de Belgique, 1875

Born at Lille, died at Highgate.

Obel is old name for poplar, (derived from "aubel" Cf abele AA)

Studied at Montpelier university. Here he met a young Provencal, Pierre Pena who afterwards collaborated with him.

L'Obel was a physician. (p6) His first work was Stirpium Adversaria nova in 1571 2d Stirpium Observationes 1576

Records that Turner gave him seeds of Crambe maritimus

It is said that his wife aided him in plant collecting.

Planchon speaks of the work of L'Obel being dominated by the passion of direct observation.

Constantly refers to localities where he has found his plants.

L'Obel shows a great advance on the groups we now call previous writers in classification. He distinguishes monocots & dicots, forming the distinction on the nervures shown between their leaves

P65 of the Adversaria any separate

At the head of each family a synoptic table of the species

Morren on L'Obel 94 2

"L'Obel's dedication of the Plantarum Historia to the Governors, Magistrates & defenders of Belgium contains much about gardening in Belgium at the time & is full of interest

The Adversaria & the Observationes were fused together into the Kruydboeck, in Flemish, 1581, L'Obel borrowed from previous books, especially those of Charles de l'Escluse,

In 1581, immediately after the Kruydboeck, Plantin brought out an album of the engravings of this book, which must they had also been used for Dodoens' Clusius', were arrayed by the advice of Severin Sobel, doctor to the King of Denmark, according to L'Obel's arrangement because it was a more natural classification. Linnaeus - the Species Plantarum constantly refers to the "Icones"

The Kruydboeck was dedicated to William of Orange, Stadtholder of the Low Countries, & to the Magistrates of Antwerp

William the Silent made him his physician, & L'Obel lived at Delft, & he near him, until the assassination of the Stadtholder. He then returned to Antwerp. Later on he came to England. He had the superintendence of a medical garden at Hackney belong to Lord Ed. Zouch. He

Was given the title of Botanist to James I

L'Obel knew Gerard but after the publ. of Gerard's Herbal relations became slightly strained, because L'Obel who was engaged to look over the work by the printer (it was a mere translation of Dodonaeus' Pemptades) found many faults which Gerard would not let him correct, saying that L'Obel had forgotten his English!

L'Obel in classn. relied upon the leaves, others what made him first Monocots & Dicots apart. His idea was to pass from the simple to the complex. Where he failed was in ~~treating the~~ classifying ~~vegetative organs the importance things~~ by the leaves first, & only the flowers & reproductive organs of secondary importance. He put some monocots with net veined leaves among the Dicots. He separated trees from herbs. Lobel produced his 3 important works in the 10 years (1571–1581) & his reputation really rests on the Adversaria in which is classification is first found; a classn. which he never changed.

A powerful, rough, even violent, but ardent & indefatigable personality.

Meyer on L'Obel (class.

Meyer Geschichte der Botanik

Lobel p 365

His classif is his chief point; — the main principle is to go from the simpler & less developed to the more highly dev^d - His grouping is often very natural, though he made a number of errors such as scattering the more anomalous monocots (such as Calla, Tamus, Aloe Ghatrotes Ruscus) among the dicots. He precedes each more or less natural group of plants by a synoptic table of genera, although with no degrees. We recognise in L'Obel a more modern effort to arrive at a natural classification than we see in any previous author

Aristotle. AP 39 97

Morning Post
May 27. 19

NATURAL HISTORY IN THE CLASSICS.

Professor D'Arcy Thompson lectured yesterday at the Royal Institution on the natural history of Pliny and Aristotle—of Pliny as focussing the great Imperial age of Rome, of Aristotle as giving the finest and purest science of ancient Greece. Pliny wrote like Goldsmith, but with greater learning, and like Buffon, but with less learning. His book on birds told much of the common Italian birds, and gave the stories which the rarer wanderers to Italy brought with them. His description of the birds that "fight round the tomb" tallied with the description of the antics of the ruffs and reeves, rediscovered over a century ago by Pennant and Montagu in the Fens of Lincolnshire. The Seleucides, who came to save the harvest from the locust, were identified with the rose-coloured pastor, which during springtime in modern Greece, when insects are plentiful, is known as the angel-bird, and in autumn, when it eats the fruit and grapes, as the devil-bird. Opinions as to the value of Aristotle's natural history had varied. Even such errors as the story that the eagle teaches its young to stare at the sun or that the hawk lays three eggs, hatches two, and rears one nestling, turned out to be Egyptian myths, and were a reminder that Greece was the recipient and depository of the learning of the Eastern civilisations. Aristotle's method of classification was that of the logician who aimed at classifying without seeking any one classification, much less the right one. He had dissected and analysed the cuttlefish with such minuteness as even to describe the baby cuttlefish as it comes out of the egg with the yolk-sack attached to its head. The disproportionate amount of attention given to the cuttlefish might be attributed to its connection with the cult of Venus Cytherea. The argonaut shell, which has a little cuttlefish within, was sacred to Venus, and furnished the bark in which she was often depicted as sailing. No object was more often repeated than this shell in the charms and amulets of Mycenæan art. Aristotle had an intimate knowledge of insects. He described the metamorphosis of the blood-worm of the stagnant pools from which came gnats and mosquitos. The metamorphosis of the butterfly, over which he slurred, was quite foreign to Greek literature, perhaps because there was something ominous to the Greek in that all-but-embodied spirit which we call "butterfly," but which the Greeks called ψυχη ("soul").

LONES (THOMAS EAST). Aristotle's Researches in Natural Science. London, West, Newman & Co., 1912, VIII and 274 pp. 10 text figures, in - 8°. 6s. net.

It is impossible to arrive at any just understanding of the history of scientific thought without some knowledge of the work of Aristotle, the fundamental importance of which is admitted on all hands. Many students of Natural Science, however, are unable to read his writings in the original, and, in these days of strenuous specialisation, are also too fully occupied with their own chosen subjects to attempt the laborious task of wresting what is essential from the ever-growing mass of Aristotelian critical literature. To such students the present book by Dr.Lones, in which Aristotle's achievements in Natural Science are brought together and related with convenient brevity, should prove a great boon. The work has, however, les défauts de ses qualités. Too often lucidity is sacrificed to conciseness, with the result that a confused impression is left upon the mind of the reader. The student of the history of science would have been grateful if Dr.Lones had amplified his preliminary chapters and dealt more fully with

such subjects as Aristotle's method of investigation and his influence on scientific thought in the Medieval and Renaissance periods - subjects which he has touched, but of which his treatment is somewhat tantalizing and unsatisfying.

A subject of unusual historical interest, among many to which attention is directed by Dr.Lones, is the encouragement accorded by the Church to the study of Aristotle during the Middle Ages. The alliance between the Church and Aristotelianism became so close that an attack on one was considered ipso facto to be an attack on the other. This alliance appears to have survived until the time of the Renaissance, when the Reformers, notably Luther, made a vigorous onslaught upon the philosophy of Aristotle.

The theoretical basis of Aristotle's method of investigating the natural sciences, was the ascertainment of facts by the actual observation of natural phenomena by means of the senses. As Dr. Lones shows, however, his practical application of the method was defective, and he failed to realize that there were many natural phenomena about which very numerous observations must be made, before any general statement concerning them can be formulated. We can scarcely, indeed be surprised that Aristotle should have

been satisfied with inadequate and unverified observations, when we remember how tardy scientists have been, even in comparatively modern times, in recognizing the necessity for detailed experimental and descriptive work as a foundation for broad generalizations.

The scope of Dr. Lones' book is remarkably wide, dealing, as it does, with the nature and value of Aristotle's researches in physical astronomy, meteorology, physical geography, physics, chemistry, geology, botany, anatomy, physiology, embryology and zoology. Its value to the student is much increased by the references which are given to all those passages from which statements are quoted. It is obviously impossible, in the case of a short analysis, such as the present, to attempt to follow Dr. Lones' exposition in detail. We cannot do more than mention a few outstanding features of Aristotle's scientific work.

It is always necessary, in considering Aristotle's views, to bear in mind that he believed in the formation of terrestrial matter from the four "elements", the natural motions of which were upwards from the centre in the case of Fire and Air, and downwards towards the centre in the case of Earth and Water. These elements were compounded of the four forces, Heat, Cold, Wetness and Dryness. He also believed that there was a fifth element, Æther, which had

a circular motion and existed at a great distance from us. Æther was eternal and indestructible, but the other four elements required to be renewed by generation. According to Aristotle, the Earth occupied the centre of the Kosmos or Universe, which was spherical in form and finite in magnitude, and outside which neither Space nor Time existed. In considering the physical nature of matter, Aristotle rejected the atomic theories of Leucippus, Democritus and others, but it must be remembered that such theories bore only a superficial resemblance to the modern atomic theory of chemists. Compared with the theory of the ancient atomists, it may be said that matter was considered by Aristotle to be vitreous and colloidal and by the Atomists to be granular.

Paul

Aristotle's opinions upon the nature of living beings were of exceptional interest. He believed in a gradual transition from inanimate things to animals - an idea which had been foreshadowed by other philosophers. Animate beings were distinguished by the possession of ψυχή a word which may be translated "vital principle", although, as Dr. Lones points out, it is doubtful whether there is any English word or phrase which exactly expresses its meaning. Aristotle considered the vital principle to be

related to living bodies in a manner comparable with the relation of Form to Matter or Sight to the Eye. He says that, if the Eye were a living being, then Sight would be its vital principle. He regarded the vital principle as existing in three grades (1) Nutritive, (2) Sentient, (3) Intellectual; the Sentient includ~~ed~~ing the Nutritive, and the Intellectual includ~~ed~~ing both the others. Plants possess only the Nutritive Principle, and animals the Sentient, while man possesses the highest degree, the Intellectual.

Zoology, as an independent branch of scientific research owed its establishment to Aristotle. It is probable that he was taught to dissect animals when he was quite young, for his father was one of the Asclepiads, an order of priest-physicians, who are said to have practised dissection and instructed their children in the art. Dr.Lones concludes that Aristotle, in all probability, himself examined in this way about 49 different animal species, of which he gives a list (p.106), but he is convinced that he never actually dissected a human body.

Dr. Lones draws attention to the fact that Aristotle did more than any other anatomist who lived before the times of Vesalius and Servetus to prepare the way for a satisfactory explanation of the phenomenon of the circulation of the

blood. Respiration, however, was a process which he failed to understand, although some of his observations on the subject were of value. He believed that lungs and gills mainly served to cool the animals to which they belonged, and he denied the existence of respiration in those animals which did not seem to possess such organs, and also in plants. To some extent he understood the structure of the lung, for he says that there is no common duct between the branches of the blood-vessels and those of the trachea, but that, in some way, air passes from the small air passages into the closely adjacent branches of the pulmonary blood-vessels.

On the morphological side, Dr. Lones shows that Aristotle was constantly mindful of the idea that there exist, in some animals, component parts which may be considered to take the place of certain parts in other animals. He alludes, for instance, to the correspondence between the fore feet of quadrupeds and the hands of man. He does not seem, however, to have drawn a clear distinction between those parts which we should now call homologous, and those which, without being truly homologous, are analogous in function. In connection with his general views on structure, it is interesting to find that he regarded the Barbary

Ape and other monkeys and baboons as partaking of the nature of both men and quadrupeds, although he had not, apparently, any conception of the evolution of the higher forms of life from the lower.

Great importance is attributed by Dr.Lones to Aristotle's work on the Generation of Animals (περὶ ζώων γενέσεως) and he regards his research on the embryology of the chick as deserving particular credit. Aristotle's view of generation was that the female contributed to the embryo merely passive material, while the male did not contribute matter, but supplied the form and motive principle. He says, very acutely, that the young animal is not at once a horse or a man, but that its life is at first like that of a plant and that the characteristics of the particular species of animal to which it belongs are the last to be developed. This seems to foreshadow the modern theory that the embryological development of the individual is an epitome of the phylogenetic history of the species.

In his concluding remarks Dr.Lones points out that he has aimed at showing fairly the defects of Aristotle's works as well as its excellences. The value of the book is, indeed, greatly enhanced by the fact that Dr.Lones is no blind admirer of the Philosopher whom he has studied

so closely. He treats his views with dispassionate criticism, and has endeavoured, wherever possible, to check his statements by means of first hand investigations. A useful index gives easy access to the mass of information contained in the book.

AGNES ARBER, (Cambridge)
~~(Cambridge).~~

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ARISTOTLE AND NATURAL SCIENCE.

THE WORKS OF ARISTOTLE TRANSLATED INTO ENGLISH. Volume IV. HISTORIA ANIMALIUM. By D'ARCY WENTWORTH THOMPSON. (Oxford: Clarendon Press. 10s. 6d. net.)

ARISTOTLE'S RESEARCHES IN NATURAL SCIENCE. By THOMAS EAST LONES. (West, Newman. 6s. net.)

The biological works of Aristotle have had strange fortunes. They only survived in all probability because they were buoyed up by his philosophical works; during the Middle Ages they were unintelligently revered as oracles of truth; when his other writings were for a season decried, these still continued to influence modern science, as notably in the case of Harvey, and yet, since the general reawakening of interest in those other writings, these have been sadly neglected by the professed Aristotelians. During this last period of their history men of science have for the most part either extolled them with more zeal than discretion or ignored them almost altogether. It may be hoped that now they will receive more attention in England from both Aristotelian and man of science, and there are not wanting signs that they are receiving it already. The Oxford Press has published the translation of all the most important of these treatises in a convenient form, and any one who wishes to form a critical judgment of their true merits can do so without wrestling with obscure and corrupt texts and yet with a reasonable assurance that what he reads does not misrepresent the author, unless indeed corruption of the original has made misrepresentation of the meaning inevitable.

Of the three great works—namely, "De Partibus," "De Generatione," and the "Natural History"—there can be no doubt that the last named was the first written. It serves in part as raw material for the other two. Its composition is chaotic. Parts of it form elaborately worked-up descriptions; then again we wade through pages of notes of all kinds. In some cases there are statements which are contradicted in the later works; it is only reasonable to suppose that Aristotle had put down in the "History" what had happened to come in his way, without asserting it to be true, and that when he discussed the question more scientifically later on he definitely declined to believe it. Thus in the "History" he repeats without warning the story of the salamander living in fire; in the "De Generatione" he denies the possibility of any animal doing so. Sometimes we can actually catch him copying straight from some predecessor: thus he takes the account of the hippopotamus from Herodotus, of the "martichoras" from Ctesias, and if he remarks on the untrustworthiness of the latter he betrays no suspicion of the former. The uncertainty thus arising so often about the author's own belief, the disconnected and fragmentary style of so much of the work, and the silly character of so many of the statements in it, whether he believed them or not, cause it to be something of a weariness to the flesh to read it through. It is also impossible to say how much of it was a contribution to the advancement of science, as nearly all the work of his predecessors has been lost; yet everything leads us to believe that in zoology his performance was as epoch-making as it was in logic. After all possible deductions, it remains one of the most astonishing books in the world.

The Greek of the "History" is easy where it is not corrupt, and a number of workers had already done much to smooth the rough places. Professor Thompson has made discreet use of their labours, and his translation is seldom open to any cavil; it is a great advance indeed upon its forerunners, and in English is entirely without a rival. It is, however, rather for illustration and explanation of the matter that we naturally look to him. A great deal of his work in this line is invaluable; in several cases he gives us pictures which make the meaning clear at a glance, and many of his notes are most illuminating. We may note, for example, that upon the sexual difference in the feet of the crawfish, where he points out that modern naturalists have generally overlooked this distinction and the commentators in consequence have failed to understand the text. This is an example of what so often astonishes us, that the Greeks had observed things which escaped modern zoologists for centuries. Our only complaint is that the notes are not more numerous still; for instance, we should like to know whether the statements about the elephant in vi. 27 are true or not. The zoologist may not need to be told, but the humble Aristotelian needs enlightenment.

Exception, however, may well be taken to some points in the translation. To render μαλάκια as "*molluscs*" and φλέβες as "veins" is unfortunate, though some defence may be put up for both; we say this despite the notes at 487b15 and 513a15. But to make Aristotle speak of whales and dolphins as "fish," as is done more than once, is astounding. One thinks of what Pascal said to the Jesuit:—"Mais est-il possible, mon Père, qu'Aristote ait eu cette pensée? Car j'avais ouï dire que c'était un habile homme." The style is marred by eccentricities in places, and the perpetual insertion of the words "by the way" without rhyme or reason is very irritating. Here and there the Greek is misunderstood. At 561a5 γίνεται ἤδη ἄνω τὸ ὠχρὸν προσεληλυθὸς πρὸς τὸ ὀξὺ does not mean "the yolk comes into being rising towards the sharp end," but "the yolk is now on the top, having risen towards the sharp end," and the note on this passage is itself more "fanciful" than Aristotle's mistaken but honest endeavour to get at the facts. The statement about the aorta at 513a20 was correctly explained by Vesalius centuries ago, but Professor Thompson says it is "meaningless" and proposes a very wild emendation; and when we remember that Aristotle carried out his researches on the heart by first strangling his animals, we are startled at being told that he would find the pulmonary artery empty of blood. At 535b12, [illegible] cannot mean the "friction of air between the wings," but that is a difficult passage, and perhaps the clause is interpolated. It is strange, too, to find a zoologist translating πελάγιοι by "pelagic," which surely is not at all the same thing in modern language. The curious remark that the seal "looks like a cow" is evidently due to a misprint (567a10); for "looks" read "lows." But enough of fault-finding: this translation is a work which deserves to be welcomed by every one as a solid and valuable contribution to learning, much more remarkable for its wealth of information than for a few lapses from perfection.

The other work with which we have here to deal is on a lower level. Dr. Lones has undertaken a general survey of the whole field of Aristotle's science, geology, physics, biology, and all the rest, though not including mathematical and mechanical researches. So comprehensive a view of the subject has not been undertaken since Lewes's "Aristotle" in 1864. In spite of his deplorable attitude and of his dreadful mistakes, Lewes contrived to write a book of the greatest interest; Dr. Lones has produced a compendium which may be useful but is certainly unreadable. The style is as dry as a bone, insomuch that the very statement of facts sometimes becomes unintelligible to any one who is not acquainted with the original. "He says that insects and other animals belonging to his *Entoma* cannot respire, and in support of this statement he says that many of the *Entoma* live when divided into two or more parts, and that flies and bees swim about for a long time in water, unless this is very cold or hot." Quite true, but who could understand it as so put? It is a pity, too, that he did not seek the aid of a competent Greek scholar; he might then have got rid of the fearful and wonderful word "homoeomerion" which defaces so many of his pages; he might have dropped his impossible explanation of the passage about the toes of the camel; he might have learnt what is meant by calling the motory limbs [illegible]. It is more extraordinary that he seems unaware of the existence of the Oxford translations, from which he might have derived much useful information and which might have saved him from some serious mistakes. Nor does he seem to have heard of Huxley's paper on Aristotle's account of the heart, nor of Joachim's on his views on chemical mixture (*Journ. Philol.*, vol. xxix.). Still, his account of Aristotle's mere statements is very correct in the main, and it is useful to have them thus gathered together, for it is not always easy to get at them, and in this Dr. Lones has shown praiseworthy industry. But when it comes to reproducing the long and difficult argumentation of the author he cannot be pronounced successful; we may refer, for instance, to his *résumé* on page 195 of Aristotle's arguments against pangenesis, where he confuses the question at issue. Aristotle says that theorists argue for pangenesis from the fact that children resemble their parents, and he answers that this proves nothing because they resemble them even in nails, hair, &c., no part of which can have come from the parents; Dr. Lones turns this into "Children *have* nails, hair, &c." But the truth is that to survey the whole of Aristotle's scientific work requires a syndicate of specialists, and is beyond the power of any one man.

Botany in England

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(3 pages of notes for Dict. of Nat. Biog.) Dict. Nat Biog. Lowtouche & Parkinson. 1 108

Edward la Touche –
His garden at Hackney was superintended by
L'Obel.

Parkinson John. 1567 – 1650
Garden in Long Acre. Apothecary to James I,
obtained from Charles I the title Botanicus
Regius Primarius –
Introduced various new plants into English gardens, &
recorded a number more as growing in gardens here.
Paradisus Terrestris. ded. to Queen Henrietta
Maria.
Nearly 1000 plants described, ~~and~~ of 80 figures
on 108 plates. Wood blocks cut in England, but
figs copied from Clusius L'Obel & Dodoens
Theatrum Botanicum: – Johnson & Gerard.
Work more original than that of Johnson & Gerard.
Incorporates almost the whole of Bauhin's Pinax
The cuts are inferior English copies of those of
Johnson. Many of his descr. are new. His
classn. is inferior & that of Lobel – He incorporated
many of Lobel's MS notes.

Dict of Nat Biog - Lyte

109

Lyte, Henry. (1529?–1607)

Lyte's copy of Dodoens Historie de Plantes with
M.S. notes, endorsed "Henry Lyte taught me to
speake English", is now in the British Museum.
He wrote a book tracing the descent of the British
from the Trojans (not H. L.)

Dict. nat. Biog. Gerard, Cole, Johnson

Gerard. John

Apprenticed as surgeon; —

Cole William (His name is given as Coles on the title pages of his works, but appears to be really Cole

b 1626 in Oxfordshire. became Fellow of New College Oxford BA of Oxford. lived at Putney in Surrey. Died in 1662, when he was Secretary to Bishop of Winchester.

Johnson, Thomas M.D. d. 1644. in the Civil War

Botanist & Royalist Colonel in the Became an apothecary in London; had a physic garden in Snow Hill

His first work was a shew account of some of the herborising excursions & which the Apothecaries company was - the habit of taking. This is the first local catalogue published in England. He also puts an appendix on the plants of Hampstead heath.

added 800 new species 700 species of Jewels Health Wake and 2000 descriptions. Parts in 1633 & reprinted in 1636 with an illustration.

He also published a description of Scarborough Spa in England & another describing a visit to Wales in

Snowdon, & the plants obtained there.
On outbreak of Civil War joined the Royalists
He took an active part in the defence of Basing
House, & died from the effects of a chest wound.
Said to have been very valiant.

Turner, Robert ~~[illegible]~~ (flourished 1654–1665)

Numerous astrological treatises & translations
Βοτανολογια seems his chief botanical work.

Culpeper, Nicholas (1616–1654)

Was at Cambridge for a short time. Apprenticed
to an apothecary & about 1640 set up for
himself as astrologer & physician in
Red Lion St., Spitalfields. Said to have
been engaged in ~~[illegible]~~ civil war on the
parliamentary side, & to have once been severely
wounded.

In 1649 he published an English translation
of the College of Physicians "Pharmacopoeia"
This translation which was unauthorised,
was received with the greatest indignation by the
College of Physicians. He published numerous
editions of these under different names* – He
~~[illegible]~~ was but
produced a number of works, & ~~left~~ when he
died at 38 left a quantity of MSS some
of which were published later. He was always
in straitened circumstances, for he was very ready to give
advice gratuitously to the poor

* As "The English Physician Enlarged" &c. these taken numerous editions
& achieved immense popularity.
Reprinted 1802 edited by S. A. Jordan, M.D.

Payne J. F. Summary of a paper on English Herbals. Trans Bibl Soc. Vol IX p 120. 1908

The Banckes series have no connection with any herbal printed on the Continent "probably an abridgement of some mediaeval English manuscript on herbs"

= Camus Bibliotheca Estense at Modena 2 Grete Herball the preface & supplement shew some debt to the Hortus Sanitatis. This preface & supplement are not found in le Grand Herbier

The 1576 issue of Pena Lobel was really printed by Purfoot in London. The archives of the Plantin Museum at Antwerp shew that Plantin bought 800 copies of Purfoot's impression (with woodblocks) & issued them as stated keeping Purfoot's original colophon. The Adversaria is thus both in 1571 & 1576 a genuine product of the London press.

Gerard's figure of the Virginian potato is the first published

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Pulteney (Richard) Historical Sketches of the Progress of Botany in England. 2 vols 1790

p40 Speaks of the Vienna MS of Dioscorides and gardens & refers to the epistle of Juliana Anicia daughter of Flavius Anicius about 492

p44. No original English Herbal before James
p50. Anthony Askham. A little Herbal
dedicated with astrology
William Copland A Boke of the Properties of Herbes called an Herball
p52. Crete is said to have been the physic-garden of Rome. "The Emperors, we are told, maintained in that island herbarists & gardeners, to provide the physicians of Rome with simples." Castor had planned gardens at Rome.
The first modern garden was that of Padua founded 1533

By Botanical Gardens

Pulteney on Turner

p 558. Dr William Turner born at Morpeth 11½
in Northumberland & educated at Pembroke
College Cambridge. He became a physician & divine
Was imprisoned as a religious reformer, on
his release went into voluntary exile. He lived
at Basle Strasburg & Cologne, Italy, Brasselles
He attended the lectures of Lucas Ghinius
at Bologna. Ghinius was the first who
created a separate professorial chair for
botanical science. He was also the teacher
of Caesalpinus. He got a physician's fee
for Bologna in order to get materials to
illustrate his lectures on Dioscorides. During his
residence in Switzerland he became a friend
of Gesner.

On the accession of Edward VI he returned
to England, was incorporated doctor of physic
at Oxford, appointed physician to Edward
Duke of Somerset, made a Prebendary
of York - a Canon of Windsor & Dean of
Wells. In 1551 he published the first Jan-

3

of his books of plants. Having written several religious tracts in the cause of the reformation, he retreated to the Continent during the whole reign of Mary. After decease Queen Elizabeth reinstated him in all his church preferments. He seems to have divided his time between his deanery, where he had a botanical garden, this house in Crutched Friers London. He also speaks of his garden at Kew

Digitized by Hunt Institute for Botanical Documentation

Died 15 68 (an MS. marginal note says that he was buried in St. Olaves Church, Hart St. London

Turner's first botanical work was printed at Cologne "Historia de Naturis Herbarum Scholiis et Notis vallata". (This is mentioned by Bumaldus. Pulteney has not seen it. Probably not republished in England. Followed by a small volume "Names of Herbes, in Greke, Latin, English, Dutche, & French" London. 12° 1548

Pulteney on Turner 114 9

Turner also wrote a treatise on birds & contributed information on English fishes to Gesner's Historia Animalium

His main work is his History of Plants printed at different times in three parts, in folio, with cuts. London. 1551, reissued Cologne 1562 during his exile in the reign of Mary, with this was reprinted his first part. In 1568 there were reprinted with the addition of the third part.

Printed in black letter

p 68. "What he says of the virtues of plants, he has drawn from the ancients; but has, in numberless instances, given his opinion of their qualities, in opposition to those sages, & recorded his own experience of the virtues. He no where takes any doubtful plants upon trust, but appears to have examined them with all the precision usually exercised at a time when method & principles were established were unthought of."

p 70 Pulteney on Turner + Lyte 1155

Turner's figures are the same with which the octavo edition of Fuchsius was first printed in 1545. i.e. more than 400 of them are for the same, with about 90 new ones. The complete edition was probably printed in Cologne because the blocks were there

p. 75. Pulteney thinks that Gerard, Johnson + Parkinson did not refer frequently to Turner in their work

p 88

Henry Lyte was the next after Turner to publish an English Herbal. Born in 1529 + became a student at Oxford about 1546 : the latter part of Henry VIII reign. He travelled + on Lyte retired to his patrimony. Died at 78. Lyte's son who drew up a genealogy of James I for which he was rewarded + presented with a picture in gold set with diamonds.

Pulteney on Lyte 116

Lyte's Herbal was professedly a 6
translation from the French version of
the Dutch Herbal of Dodoens, written by
the author in 1553 & translated by Clusius
in 1557.

The first edn of Lyte's Herbal was printed
p91 in Antwerp 1578
1050 species described, & 870 figures.
The blocks the same with which Clusius'
map translation was printed. Many
copies from the octavo edition of Fuchsius,
& far as those extend. Most of Turner's
figures are found in Lyte, — the remainder
had been cut for the subsequent parts of
p92 Dodoens. Lyte added about 30 new ones.
Salvia aethiops (251) & Rhaponticum
p 142, Centaurea Rhapontica p 329
Erica Cretica p 678
p94 The subsequent editions printed in England
had no figures.

Pulteney on Lobel

Lyte seems to have added little to 1177
English botany

p 96

Matthias de Lobel b. 1538 a Lisle
at the age of 16 began to pursue botany.
Travelled considerably, & settled down as
a physician at Antwerp — afterwards at
Delft. Made physician to William
Prince of Orange & the States of Holland.
Came to live in England & probably resided
at Hyde gate with his daughter & son in
law during the last years of his life. Died
1616 aged 78

Pulteney

~~Bock De Historia Stirpium~~

Pulteney (contd.)

p. 3. Hippocrates enumerates 300 vegetables used in physic
Dioscorides ——— nearly 700 ———

Druids on mistletoe. See Pliny lib XVI. c 44
The mistletoe is the only one of the Druidical plants
which we certainly know.

p 21
ms. of Henry Archdeacon of Huntingdon Bib. Bodley. 6353
ms in 8 books de Herbis etc.
By writings of Bulleyn Tanner above mss
A large number of ms. [illegible] [illegible] [illegible] in [illegible]

p 27.
Herbal of Apuleius supposed to have been the
most popular in England in early days.

p 41
Figures copied from the Vienna ms into Dodoens
& Gerard.
Coronopus Dod ed 1583 p 109. Ger. em 1190
Arction Dod 849
Hyoscyamus Dod 2016
Hypophäes Dod 373
etc

William Turner

The Names of Herbes . 1548

ed. by J. Britten. 1881

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Red Archaungel Stachys sylvatica L

Eglentyne Rosa ~~bu~~ rubiginosa L.

Eldens Petasites vulgaris Desf

Gethsamyne Jasminum officinale L

Maye grapes Botrychium Lunaria L

Fyssheres Gyrdle Laminaria saccharina, Lam

Lady traces Spiranthes autumnalis Rich

Libardbayne Paris quadrifolia L

Petie nenuphar Caltha palustris L

Ponde or swymmynge Plantayne Potamogeton

Priestes crowne Leontodon Taraxacum L

Redcornrose Papaver Rhaeas L

Water Rose { Nymphaea alba L / Nuphar lutea Sm

Thorowwax Bupleurum rotundifolium L

Two faces in a hoode Viola tricolor L

Water Lentilles Lemna minor L

See also { Turner, William Libellus de re herbaria novus; originally publ. in 1538, reprinted in facsimile, with notes, modern names, & a life of the author by B. D. Jackson. In this there is also an index of the English names used by Turner & their equivalents.

Turner 120

A new Herball, wherin are contayned the
names of Herbes in Greke, Latin, Englysh, Duch Frenche,
and in the Potecaries & Herbaries Latin, with the
properties degrees & naturall places of the same,
gathered & made by Wyllam Turner, Physician
unto the Duke of Somersettes Grace. Imprinted
at London by Steven Mierdman Anno 1551

Turner, William. Libellus de re herbaria novus. originally published in 1538, reprinted in facsimile, with notes, modern names, & a life of the author, by Benjamin Daydon Jackson. London 1877

Both gives the first-recorded localities of our native plants

Life of W Turner by B. D. Jackson

Born in Northumberland probably bet. 1510 & 1515 ed. at Pembroke Hall Cambridge. Married Jane, daughter of George Ander, Alderman of Cambridge. Intimate with Nicholas Ridley, afterwards Bishop of London with whom he practised archery & tennis. Hugh Latimer was also one of Turner's friends ~~& companions~~ & instructors (cf N Grew & his father AA) imprisoned for preaching ~~the reformed~~ ~~doctrines~~ but it is not known exactly what for. He steadfastly contended for the Reformed Faith all his life. Studied at Bologna etc & visited Como, Milan, Venice & other places. Visited Conrad Gesner at Zurich, — the beginning of a warm friendship. His religious writings were prohibited in the reign of Henry VIII as disseminating doctrines repugnant to his majesty's views. Travelled in Holland, visited Louvain, Antwerp etc. He came home soon after the accession of Edward VI. He was physician to the Protector, Earl of Somerset. He conversed in Latin with the Princess Elizabeth. Preferment was slow to come to him, but at last he got the deanery of Wells. He experienced much difficulty in getting hold of the deanery house. His having difficulty was really

while in his temporary lodging
census & Turner complained "i can not go to my booke for ye crying of childer & noyse y^t is made in my chamber." Turner was a fugitive during the whole of Mary's reign & the previous Dean of Wells was reinstated. He visited many places in Germany finally taking up his residence at Cologne whence in 1562 he issued the second part of his herbal - His works for the second time were prohibited in 1555 by Philip & Mary. On Elizabeth's accession he returned to England & was reinstated in the Deanery of Wells -

Turner seems to have been a thorn in the flesh to his superiors. The Bishop of Bath & Wells wrote that he was "much encombred w^th m^r Doctor Turner Deane of Wells, for his undiscrete behavior in the pulpitt: where he medlett w^t all matters, & unseemlie speaketh of all estates, more than ys standynge withe discresyon." In 1564 he was suspended for nonconformity.

A careful index of Turner's names of plants

A Catalogue of Plants cultivated in the Garden of John Gerard, in the years 1596 & 1599 edited by B.D. Jackson. London 1876

John Gerard born Nantwich in Cheshire 1545.
Gerard himself, & his friends, invariably spell the name with an "e" final

Gerard had a large garden in Holborn, then the most aristocratic portion of London

1596 published a list of the plants growing in his garden, the first moderately complete list of the contents of any one garden

John Norton the Queen's Printer, had commissioned a Dr. Priest, to translate Dodoens's Pemptades (1583) from Latin to English, but the latter died before his work was finished & the unfinished translation came into the hands of Gerard. To make the most of his Herball being little else than a mere translation, he altered the arrangement from that of Dodoens to that of L'Obel. The woodblocks used by Tabernaemontanus in his Icones 1590 (not the Neuw Kreuterbuch 1588) with some others were procured for Gerard by Norton, but Gerard soon showed his slender knowledge, by misapplying

many of the figures, & caused so much confusion in the early chapters of the Herball, that the direction of the printer was directed to it by James Garret, a London Apothecary, & the correspondent of Charles de l'Escluse. L'Obel was thereupon invited to correct the work, & by his own account he actually corrected it in a thousand places, but further emendation was stopped by the author, who contended that the Herball was already sufficiently accurate, & that his censor had forgotten the English language. The Lobel contains upwards of 1800 woodcuts, of which not 716 original. [See Haller A. Bibliographia Botanica Tigurii 1771. Vol i p 389.]

The original edition of the Herball is seldom quoted, since the emended edition edited by Thomas Johnson in 1633 is superior in every respect. It is only fair to say that Gerard avoids his slight attainments & says that the book is principally intended for gentlewomen (see p 707).