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GILBERTUS ANGLICUS
Medicine of the Thirteenth Century

by

HENRY E. HANDERSON, A.M., M.D.

With a Biography of the Author

Published Posthumously

FOR PRIVATE DISTRIBUTION

by

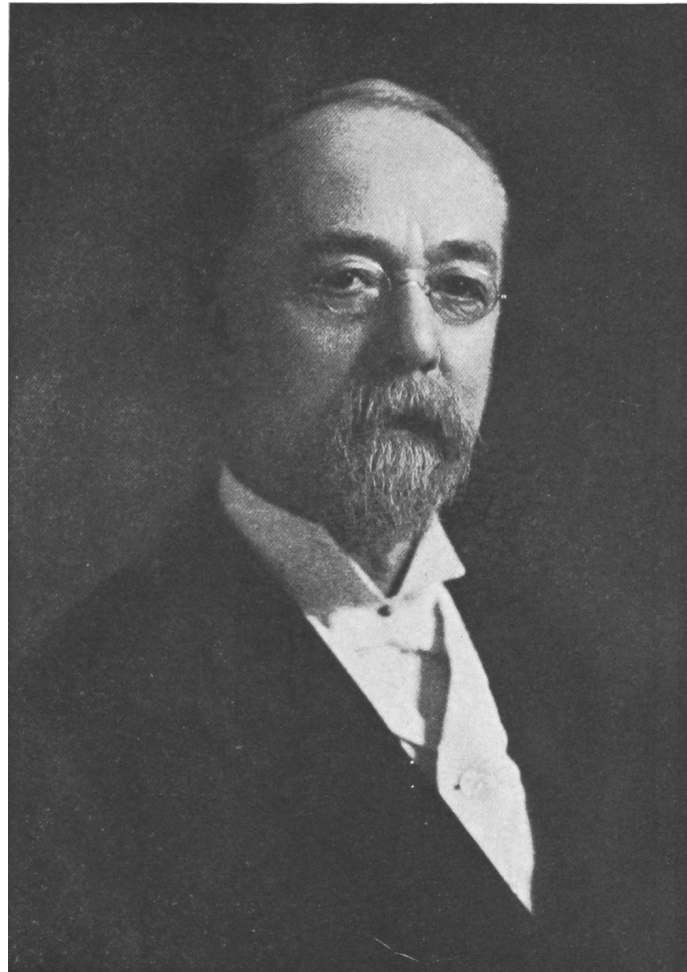
The Cleveland Medical Library Association

CLEVELAND, OHIO

1918

Contents

	Page
Frontispiece	5
Explanatory Foreword	7
Biography	9-14
Resolutions of the Cleveland Medical Library Ass'n	15
Gilbertus Anglicus—A Study of Medicine in the Thirteenth Century	17-78



HENRY E. HANDERSON

Explanatory Foreword

In the summer of 1916 the librarian of the Cleveland Medical Library received a manuscript from Dr. Henry E. Handerson with the request that it be filed for reference in the archives of the library. The librarian at once recognized the value of the paper and referred it to the editorial board of the Cleveland Medical Journal, who sought the privilege of publishing it. Dr. Handerson's consent was secured and the article was set in type. However, when the time came for its publication the author was reluctant to have it appear since he was unable then to read the proof, and because he felt that the material present might not be suitable for publication in a clinical journal. To those who knew him, this painstaking attention to detail and desire for accuracy presents itself as a familiar characteristic. Though actual publication was postponed, the type forms were held, and when the Cleveland Medical Journal suspended publication, its editorial board informed the Council of the Cleveland Medical Library Association of the valuable material which it had been unable to give to the medical world. In the meantime Dr. Handerson's death had occurred, but the Council obtained the generous consent of the author's family to make this posthumous publication. It is hoped that those who read will bear this fact in mind and will be lenient in the consideration of typographical errors, of which the author was so fearful.

The Cleveland Medical Library Association feels that it is fortunate in being enabled to present to

its members and to others of the profession this work of Dr. Handerson's and to create from his own labors a memorial to him who was once its president.

SAMUEL W. KELLEY.
CLYDE L. CUMMER.
Committee on Publication.

[pg 9]

Biography

HENRY EBENEZER HANDERSON

Owing to Dr. Handerson's modesty, even we who were for years associated with him in medical college, in organization, and professional work, knew but little of him. He would much rather discuss some fact or theory of medical science or some ancient worthy of the profession than his own life. Seeing this tall venerable gentleman, sedate in manner and philosophical in mind, presiding over the Cuyahoga County Medical Society or the Cleveland Medical Library Association, few of the members ever pictured him as a fiery, youthful Confederate officer, leading a charge at a run up-hill over fallen logs and brush, sounding the "Rebel yell," leaping a hedge and alighting in a ten-foot ditch among Federal troopers who surrendered to him and his comrades. Yet this is history. We could perhaps more easily have recognized him even though in a military prison-pen, on finding him dispelling the tedium by teaching his fellow prisoners Latin and Greek, or perusing a precious volume of Herodotus.

Henry Ebenezer Handerson was born on March 21, 1837, here in Cuyahoga county, in the township of Orange, near the point now known as "Handerson's Cross-Roads," on the Chagrin river. His mother's maiden name was Catharine Potts. His father was Thomas Handerson, son of Ira Handerson. The family immigrated to Ohio from Columbia county, New York, in 1834. Thos. Handerson died as the result of an accident in 1839, leaving the widow with five children, the eldest thirteen years of age, to support. Henry and a sister were adopted by an uncle, Lewis Handerson, a druggist, of Cleveland. In spite of a sickly childhood the boy went to school a part of the time and at the age of fourteen was sent to a boarding school, Sanger Hall, at New-Hartford, Oneida county, New York. Henry's poor health compelled him to withdraw from school. No one at that time would have predicted that the delicate youth would live to be the sage of four score years and one. With his foster father and family he moved to Beersheba Springs, Grundy county, Tennessee.

[pg 10]

In 1854, in good health, the boy returned to Cleveland, prepared for college, and entered Hobart College, Geneva, New York, where he graduated as A.B. in 1858. Returning to Tennessee, he occupied himself for about a year with surveying land and in other work and then became private tutor in the family of Mr. Washington Compton on a cotton plantation near Alexandria, Louisiana. There he remained a year or more, then in the autumn of 1860 matriculated in the Medical Department of the University of Louisiana (now Tulane University), where he studied through the winter, and also heard much of the political oratory of that exciting period.

The bombardment of Fort Sumter, April 12, 1861, followed by the call of President Lincoln for 75,000 troops to suppress the rebellion, found young Handerson again employed as tutor, this time in the family of General G. Mason Graham, a veteran of the Mexican war.

With his friends and acquaintances, Handerson joined a company of "homeguards" consisting mostly of planters and their sons, formed for the purpose of maintaining "order among the negroes and other suspicious characters of the vicinity."

Many years afterward Dr. Handerson wrote, in a narrative for his family, concerning this period of his life: "Without any disposition to violent partisanship, I had favored the party of which the standard-bearers were Bell and Everett and the battle cry 'The Constitution and the Union,' and I had grieved sincerely over the defeat by the Radicals of the North, aided by the 'fire-eaters' of the South."

[pg 11]

And again: "Born and educated in the North, I did not share in any degree the fears of the Southerners over the election to the Presidency of Mr. Lincoln. I could not but think the action of the seceding States unwise and dangerous to their future prosperity. On the other hand, this action had already been taken, and without any prospect of its revocation. Indeed, in the present frame of mind of the North, any steps toward recession seemed likely to precipitate the very evils which the secession of the states had been designed to anticipate. I believed slavery a disadvantage to the South, but no sin, and, in any event, an institution for which the Southerners of the present day were not responsible. An inheritance from their fore-fathers, properly administered, it was by no means an unmitigated evil, and it was one, moreover, in which the North but a few years before had shared. All my interests, present and future, apparently lay in the South and with Southerners, and if the seceding States, in one of which I resided, chose deliberately to try the experiment of self-government, I felt quite willing to give them such aid as lay in my feeble power. When I add to this that I was 24 years of age, and naturally affected largely by the ideas, the enthusiasm and the excitement of my surroundings, it is easy to understand to what conclusions I was led."

So on June 17, 1861, he volunteered in the Stafford Guards under Capt. (afterward Brigadier

General) L.A. Stafford. The Guards became company B of the 9th Regiment of Louisiana Volunteers, Confederate States of America, Colonel (later Brigadier General) "Dick" Taylor (son of "Old Zach," the President of the U.S.), in command. During the year that followed until the close of the war, Handerson experienced the adventures and trials of a soldier's life. He knew picket, scouting, and skirmishing duty, the bivouac, the attack and defense in battle formation, the charge, the retreat, hunger and thirst, the wearisome march in heat and dust, in cold, in rain, through swamps and stony wildernesses. He was shot through the hat and clothing and once through the muscles of the shoulder and neck within half inch of the carotid artery, lay in a hospital, and had secondary hemorrhage. At another time he survived weeks of typhoid fever.

He was successively private soldier and accountant for his company, quarter-master, 2nd Lieutenant of the line, Captain of the line, and finally Adjutant General of the 2nd Louisiana Brigade, A. N. Va., under Lee and Jackson, with rank of Major. On May 4, 1864, Adjutant General Handerson was taken prisoner, and from May 17th until August 20th he was imprisoned at Fort Delaware in the Delaware river. He was then confined in a stockade enclosure on the beach between Forts Wagner and Gregg on Morris Island, until about the end of October, when he was transferred to Fort Pulaski at the mouth of the Savannah river, and in March, 1865, back to Fort Delaware. In April, after Lee's surrender, many of the prisoners were liberated on taking the oath of allegiance to the Federal Government. But Handerson did not consider his allegiance to the Southern Confederacy ended until after the capture of President Davis, and it was not until June 17, 1865, that he signed the oath of allegiance and was liberated in Philadelphia.

Since that time, with that spirit of tolerance and openness to truth which characterized the man, he has said, "in the triumph of the Union, the war ended as it should have ended."

[pg 12]

Mr. Handerson then resumed his medical studies, this time in the College of Physicians and Surgeons of New York, Medical Department of Columbia University, taking the degree of M.D. in 1867. Hobart College conferred the A.M. in 1868. On October 16, 1872, he married Juliet Alice Root, who died leaving him a daughter.

February 25, 1878, Dr. Handerson read before the Medical Society of the County of New York an article entitled, "The School of Salernum, an Historical Sketch of Mediæval Medicine." This essay attracted wide attention to his scholarly attainments and love of laborious research. For example, Professor Edward Schaer of the chair of Pharmacology and Pharmaceutical Chemistry, of Neumünster-Zürich, pronounces this pamphlet "a valuable gift ... a remarkable addition to other historical materials ... in connection with the history of pharmacy and of pharmaceutical drugs"; that he found in it "a great deal of information which will be sought for in vain in many even renowned literary works."

Dr. Handerson practiced medicine in New York City, from 1867 to 1885, removing to Cleveland in 1885.

On June 12, 1888, he married Clara Corlett of Cleveland.

Then in 1889 appeared the American edition of the "History of Medicine and the Medical Profession, by Joh. Hermann Baas, M.D.," which was translated, revised and enlarged by Dr. Handerson, to whom, in the words of Dr. Baas, "we are indebted for considerable amplification, particularly in the section on English and American medicine, with which he was, of course, better acquainted than the author, and for numerous corrections." ... As a matter of fact, the learning and judgment, and the conscientious industry of the translator and American editor of this work are evident throughout the book.

Concerning Dr. Handerson's writings, Dr. Fielding H. Garrison writes (Medical Pickwick, March, 1915, P. 118): "The earliest of Dr. Handerson's papers recorded in the Index Medicus is 'An unusual case of intussusception' (1880). Most of his other medical papers, few in number, have dealt with the sanitation, vital statistics, diseases and medical history of Cleveland, and have the accuracy which characterizes slow and careful work. This is especially true of his historical essays of which that on 'The School of Salernum' (1883) is a solid piece of original investigation, worthy to be placed beside such things as Holmes on homoeopathy, Weir Mitchell on instrumental precision, or Kelly on American gynecology.

[pg 13]

"To the cognoscenti, Dr. Handerson's translation of 'Baas' History of Medicine' (1889) is known as 'Handerson's Book.' He modestly describes himself as its 'editor,' but he is more than that. As the witty and effective translator of a witty and effective work, he has added sections in brackets on English and American history which are based on original investigation and of permanent value to all future historians. Handerson's Baas is thus more complete and valuable than the Rhinelander's original text."

As listed in the Index Medicus, the publications and writings of Dr. Handerson appear as follows:

An unusual case of intussusception. Medical Record, 1880, xviii, 698.

The School of Salernum. An historical sketch of mediæval medicine. 1883.

Outlines of the history of medicine (Baas). Translated, and in conjunction with the author, revised and enlarged, 1887.

Clinical history of a case of abdominal cancer. Cleveland Medical Gazette, 1891-2, vii, 315-321.

The Sanitary topography of Cleveland. Cleveland Medical Gazette, 1895-6, xi, 651-659.

Cleveland in the Census Reports. Cleveland Medical Gazette, 1896-7, xii, 257-264.

The earliest contribution to medical literature in the United States. Janus, 1899, p. 540.

A review of the Vital Statistics of Cleveland during the last decennium. Cleveland Medical Journal, 1902, i, 71-76.

Epidemics of typhoid fever in Cleveland. Cleveland Medical Journal, 1904, iii, 208-210.

The mortality statistics of the twelfth census. Cleveland Medical Journal, 1905, iv, 425-431.

Co-operative sanitation. Ohio Medical Journal, 1905, i, 278-281.

The medical code of Hammurabi, King of Babylon. Cleveland Medical Journal, 1908, vii, 72-75.

Carcinoma in high life. Cleveland Medical Journal, 1908, vii, 472-476.

Medical Cleveland in the nineteenth (19th) Century. Cleveland Medical Journal, 1909, viii, 59, 146, 208.

Gilbert of England and his "Compendium Medicine." Medical Pickwick, 1915, i, 118-120.

Dr. Handerson was Professor of Hygiene and Sanitary Science in the Medical Department of the University of Wooster, 1894-96, and the same in the Cleveland College of Physicians and Surgeons (Medical Department of Ohio Wesleyan University), 1896 to 1907, and filled that chair with eminent ability. Thus it came about that the ex-Confederate officer taught sanitary science in a college standing upon ground donated by the survivors of an organization of abolitionists.

[pg 14]

Dr. Handerson was a member of the Cuyahoga County Medical Society, and its President in 1895; also a member of the Cleveland Academy of Medicine, of the Ohio State Medical Society, and of the American Medical Association. He was one of the founders and an active worker in the Cleveland Medical Library Association and its President from 1896 to 1902.

He was all his life devoted to the Episcopal Church, was Warden of Grace Episcopal Church, Cleveland, for many years, and Treasurer of the Diocese of Ohio during fourteen years.

During his later years Dr. Handerson withdrew entirely from active practice and spent a great deal of time in his library. His papers abound in carefully prepared manuscripts, some of them running into hundreds of pages.

Two years before his death Dr. Handerson became totally blind. This grievous affliction was borne with unvarying patience and cheerfulness. He still loved to recite from memory the classic authors, to relate and discuss episodes of world history and events of the present, to solve difficult mathematical problems, and to have his data on all subjects verified. He retained his faculties perfectly until April 23, 1918, when he died from cerebral hemorrhage.

He is survived by a daughter, two sons by the second marriage, and his devoted wife.

Among numerous letters received from prominent physicians and authors appreciative of Dr. Handerson's medico-historical labors, one from Dr. Oliver Wendell Holmes expresses high praise and requests to have sent to him everything which Dr. Handerson might in future write.

It seems eminently appropriate that the essay on "Gilbertus Anglicus." the last from the pen of Dr. Handerson, should be put in book form, together with a sketch, however brief, of its author's earnest life, his sterling character, his geniality and imperturbable equanimity, and thus preserved in testimony of the high esteem in which he was held by his contemporaries.

SAMUEL WALTER KELLEY.

[pg 15]

Resolutions

At a meeting of the Council of the Cleveland Medical Library Association, held on May 14, the following resolutions were adopted:

Resolved, That in the death of Dr. Henry E. Handerson the Cleveland Medical Library Association has sustained the loss of one of its most honored and devoted members. His scholarly acquirements were notable, and his eminence as a medical historian generally recognized. His deep interest in the welfare of the Library and his thorough attention to every detail of his official

duties were always evident, while his lovable personal qualities endeared him to all.

The Association desires to express its high appreciation of his long and valued services, and extends to his bereaved family its heartfelt and sincere sympathy.

C.A. HAMANN,
WM. EVANS BRUNER,
J.B. MCGEE.

[pg 17]

Gilbertus Anglicus (Gilbert of England)

A Study of English Medicine in the Thirteenth Century.

BY H.E. HANDERSON, A.M., M.D.

CLEVELAND

"Nothing in the past is dead to the man who would learn how the present came to be what it is."—Stubbs—*Constitutional Hist. of England*.

Among the literary monuments of early English medicine the "Compendium Medicinæ" of Gilbertus Anglicus merits a prominent position as the earliest complete treatise on general medicine by an English author which has been preserved to our day, and equally because it forms in itself a very complete mirror of the medical science of its age and its country.

Gilbert was undoubtedly one of the most famous physicians of his time. His reputation is recognized in those well-known lines of Chaucer which catalogue the "authorities" of his Doctor of Phisik:

"Wel knew he the olde Esculapius
And Deyscorides and eek Rufus,
Olde Ypocras, Haly and Galyen,
Serapion, Razis and Avycen,
Averrois, Damascien and Constantyn,
Bernard and Gatesden and Gilbertyn."

He is also quoted with frequency and respect by the medical writers of many succeeding ages, and the Compendium, first printed in 1510, enjoyed the honor of a second edition as late as the seventeenth century (1608). The surname "Anglicus" in itself testifies to the European reputation of our author, for as Dr. Payne sensibly remarks, no one in England would speak of an English writer as "the Englishman."

[pg 18]

Yet, in spite of his reputation, we know almost no details of the life of Gilbert, and are forced to content ourselves with the few facts to be gleaned from the scanty biographies of early writers and the inferences drawn from the pages of the Compendium itself. The date and place of his birth and death, and even the field of his medical activities are equally unknown. Bale, Pits and Leland, the earliest English biographers, tell us that Gilbert, after the completion of his studies in England, proceeded to the Continent to enlarge his education, and finally became physician to the great Justiciar, Hubert Walter, archbishop of Canterbury, who died in the year 1205. This would place him under the reign of King John, in the early part of the thirteenth century.

Dr. John Freind, however, the famous English physician and medical historian (1725), observing that Gilbert quotes the Arabian philosopher Averroës (who died in 1198), and believing that he also quotes a work of Roger Bacon and the surgical writings of Theodorus (Borgognoni) of Cervia (1266), was inclined to fix his period in the latter half of the thirteenth century, probably under the reign of Edward I. Most of the later historians of medicine have followed the views of Freind. Thus Eloy adopts the date 1272, Sprengel gives 1290, Haeser the same date, Hirsch says Gilbert lived towards the close of the thirteenth century, Baas adopts the figures 1290, etc.

The most recent biographers of Gilbert, however, Mr. C.L. Kingsford¹, and the late Dr. Joseph Frank Payne², after an apparently careful and independent investigation of his life, have reached conclusions which vary materially from each other and from those of the historians mentioned. Mr. Kingsford fixes the date of Gilbert at about 1250, while Dr. Payne reverts to the views of Bale and Pits and suggests as approximate figures for the birth and death of Gilbert the years 1170-80 to 1230. This discrepancy of twenty-five or thirty years between the views of two competent and unprejudiced investigators, as a mere question of erudition and interpretation, is perhaps scarcely worthy of prolonged discussion. But as both biographers argue from substantially the same data, the arguments reveal so many interesting and pertinent facts, and the numerous difficulties attending the interpretation of these facts, that some comparison of the different views of the biographers and some criticism of their varying conclusions may not be unwelcome.

In the first place then we must say that, as Gilbert is frequently quoted in the "Thesaurus Pauperum," a work ascribed to Petrus Hispanus, who (under the title Pope John XXI) died in 1277, this date determines definitely the *latest* period to which the Compendium can be referred. If, as held by some historians, the "Thesaurus" is the work of Julian, the father of Petrus, the Compendium can be referred to an earlier date only.

Now Gilbert in his Compendium (f. 259a) refers to the writings of Averroës (Ibn Roschd) regarding the color of the iris of the eye. Averroës died in the year 1198. There is no pretense that Gilbert was familiar with the Arabic tongue, and the earliest translations into Latin of the writings of Averroës are ascribed by Bacon to the famous Michael Scot, though Bacon says they were chiefly the work of a certain Jew named Andrew, who made the translations for Scot. Bacon also says that these translations were made "*nostris temporibus*," in our time, a loose expression, which may, perhaps, be fairly interpreted to include the period 1230-1250. But if, as Dr. Payne believes, Gilbert died about 1230, it seems improbable that he could have been familiar with the translations of Michael Scot. Accordingly Dr. Payne suggests that, after the death of his patron in 1205, Gilbert returned to the Continent, and, perhaps in Paris or at Montpellier, met with earlier Latin versions of the writings of the Arabian physician and philosopher. This is, of course, possible, but there is no historical warrant for the hypothesis, which must, for the present at least, be regarded as merely a happy conjecture of Dr. Payne. The presence of Gilbert upon the Continent, probably as a teacher of reputation, seems, however, quite probable. Littré has even unearthed the fact that during the 14th century a street in Paris near the medical schools, bore the name of the Rue Gilbert l'Anglois. A MS. in the Bibliothéque Nationale entitled "*Experimenta Magistri Gilliberti, Cancellarii Montepessulani*" has suggested also the idea that Gilbert may have been at one time chancellor of the University of Montpellier. Dr. P. Pansier, of Avignon, however, who has carefully examined and published this manuscript³, reports that while it contains some formulae found also in the Compendium of Gilbert, it contains many others from apparently other sources, and he was unable to convince himself that the compilation was in fact the work of Gilbertus Anglicus. Dr. Pansier also furnishes us with a list of the chancellors of Montpellier, which contains the name of a certain "Gillibertus," chancellor of the university in 1250. He could find, however, no evidence that this Gillibertus was Gilbertus Anglicus, author of the Compendium Medicinæ. On the whole then the visit of Gilbert to France early in the 13th century, and his access in this way to early translations of Averroës, while a convenient and plausible conjecture on the part of Dr. Payne, does not seem supported by any trustworthy historical evidence.

The "*Liber de speculis*" mentioned by Gilbert (f. 126 c), and since the time of Freind generally accepted as the work of Bacon, is almost certainly not from the pen of that eminent philosopher. In addition to the fact that Bacon himself says he had (for obvious reasons) written nothing except a few tracts (*capitula quaedam*) prior to the composition of his Opus Magnum in 1267, the real author of the *Liber de speculis* is probably mentioned by Bacon in the following passage from the Opus Tertium:

"*Nam in hoc ostenditur specialiter bonitas naturae, ut dicit auctor libri de speculis comburentibus.*"⁴

We must therefore agree with Dr. Payne that the *Liber de speculis* of Gilbert was at least not the work of Roger Bacon.

Dr. Freind regards the chapters of Gilbert on the subject of leprosy as borrowed substantially from the "Chirurgia" of Theodorus of Cervia, who wrote about the year 1266. This view has also been generally accepted by later writers. But Dr. Payne boldly challenges the view of Freind, declares that Theodorus copied *his* chapters from Gilbert, and asserts that Theodorus was a notorious plagiarist. Now, while the bold assertion of Dr. Payne cannot, of course, be accepted as *proof* of Gilbert's precedence in chronological order, if that precedence is otherwise established, it will explain the similarity of the chapters of the two writers very satisfactorily. For the present, however, this similarity can be adduced as evidence on neither side.

Again, Gilbert, with the enthusiasm of a loyal pupil, speaks (f. 47 b) of a certain Magister Ricardus, "*omnium doctorum doctissimus*," whose views on uroscopy certainly indicate a mind superior to his age. Now there were about this period at least two eminent physicians who bore the name of Ricardus. Of these the senior, a Frenchman, known also as Ricardus Salednitanus, is highly praised by Aegidius of Corbeil (Gilles de Corbeil, Aegidius Corboliensis), physician to King Philip Augustus of France (1180-1223). This Ricardus was a famous teacher at Salernum when Aegidius was in attendance at that famous university, therefore probably about the close of the 12th century. The second Ricardus, called Parisiensis, has been recently identified by Topley with Richard of Wendover, an English canon of St. Paul's, and at one time physician to Pope Gregory IX, who died in 1241. Topley believes him to have been also the author of the "*Anatomia Ricardi*," recently published. This Ricardus died in 1252.

Now to which of these Ricardi does the eulogistic language of Gilbert refer? Dr. Payne believes it to be the senior, Ricardus Salernitanus. Mr. Kingsford, on the other hand, thinks it to be Ricardus Parisiensis, who died in 1252. A *Liber de urinis* has been ascribed to each of them, but, it seems to me, with greater probability to Ricardus Salernitanus. If too the author of the "*Anatomia Ricardi*" was a contemporary of Gilbert, we might reasonably expect to find in the Compendium some evidences of Gilbert's acquaintance with that work. But Gilbert's discussion of anatomical

questions is totally unlike that of the author of the "*Anatomia*," and betrays not the slightest evidence of knowledge of such a treatise. On the whole then I am inclined to agree in this question with Dr. Payne, and to consider the Ricardus of Gilbert identical with Ricardus Salernitanus, the famous professor of the School of Salerno. This conclusion is further justified by the fact, generally accepted by all modern writers, that Gilbert was himself a pupil of Salerno.

Singularly enough, both Dr. Payne and Mr. Kingsford profess to find in the Compendium some evidence that Gilbert sojourned in Syria for a certain period, though the circumstances of this sojourn are viewed differently by the two biographers. Dr. Payne thinks that the physician, after completing his education in England, proceeded to the Continent and extended his travels as far as Syrian Tripoli, where he met Archbishop Walter and became attached to his staff. As the prelate returned to England in 1192, this sojourn of Gilbert in Syria must have been about 1190-91, when, according to Dr. Payne's chronology, Gilbert could have been not more than about twenty years of age. Dr. Payne bases his story upon a certain passage in the Compendium, in which Gilbert says that he met in Syrian Tripoli "a *canonicus* suffering from rheumatic symptoms." I have been entirely unable to find the passage referred to in this story, in spite of a careful search of the text of the edition of 1510. But, admitting the existence of the passage in question, it proves nothing as to the *date* of this alleged Syrian sojourn. Tripoli was captured by the Crusaders in 1109, and continued under their control until its recapture by the Saracens in 1289, a period of nearly two hundred years. Gilbert's travels in Syria may then have occurred at almost any time during this long period, and his fortuitous meeting with Archbishop Walter has very much the appearance of a story evolved entirely from the consciousness of the biographer.

[pg 22]

On the other hand, Mr. Kingsford bases his theory of Gilbert's sojourn in Syria upon a story adopted, I think, from Littré and found in the *Histoire littéraire de la France*. The Compendium of Gilbert contains (f. 137a) a chapter giving the composition of a complex collyrium with which he professes to have cured the almost total blindness of Bertram, son of Hugo de Jubilet, after the disease had baffled the skill of the Saracen and Christian-Syrian physicians of his day. Now Littré avers that a certain Hugo de Jubilet was involved in an ambushade in Syria in the year 1227, and that he had a son named Bertram. It is very natural, of course, to conclude that this Bertram was the patient recorded in the book of Gilbert. Kingsford says that Gilbert "met" Bertram in Syria, but the text of the Compendium says nothing of the locality of their meeting, which might have taken place almost anywhere in Europe, perhaps even at Salerno, a favorite resort of the invalided Crusaders in these times. Finally, Dr. Payne disposes effectually of the authenticity of the entire story by calling attention to the fact that the chapter referred to in the Compendium is marked plainly "*Additio*," without indicating whether this addition is from the pen of Gilbert or some later glossator.

Finally, I may suggest another line of argument, which, so far as I know, has not yet been advanced for the determination of the period of Gilbert.

The Compendium Medicinæ of Gilbert is, of course, a compendium of internal medicine. But the book is also something more. Not less than fifty chapters are devoted to a comparatively full discussion of wounds, fractures and dislocations, lithotomy, herniotomy, fistulae and the various diseases on the border line between medicine and surgery. Not a single surgical writer, however, is quoted by name. Nevertheless the major part of these surgical chapters are either literal copies, or very close paraphrases, of the similar chapters of the "*Chirurgia*" of Roger of Parma, a distinguished professor in Salerno and the pioneer of modern surgery. The precise period of Roger is not definitely settled by the unanimous agreement of modern historians, but in the "*Epilogus*" of the "*Glosulae Quatuor Magistrorum*" it is said that Roger's "*Chirurgia*" was "*in lucem et ordinem redactum*" by Guido Arietinus, in the year of our Lord 1230. This date, while perhaps not unquestionable, is also adopted by De Renzi, the Italian historian of Medicine. The original MS. of Roger's work is said to be still in existence in the Magliabechian Library in Florence, but it has never been published in its original form.⁵ Roland of Parma, however, a pupil of Roger, published in 1264 what purports to be a copy of Roger's "*Chirurgia*" with some notes and additions of his own, and it is from this MS. of Roland that all our copies of Roger's work have been printed. Roger's "*Chirurgia*" was popularly known as the "*Rogerina*;" the edition of Roland as the "*Rolandina*." They are frequently confounded, but are not identical, though the additions of Roland are usually regarded as of little importance. In the absence of Roger's manuscript, however, they lead often to considerable confusion, as it is not always easy to determine in the printed copies of the "*Rolandina*" just what belongs to Roger and what to his pupil and editor. Now a careful comparison of the surgical chapters of Gilbert of England with the published text of the "*Rolandina*" leads me to the conviction that Gilbert had before him the text of Roger, rather than that of Roland, his pupil. If such is the fact, Gilbert's Compendium must have been written between 1230 and 1264, the dates respectively of the "*Rogerina*" and "*Rolandina*."

[pg 23]

[pg 24]

From a careful review of the data thus presented we may epitomize, somewhat conjecturally, the life of Gilbert substantially as follows: He was probably born about 1180 and received his early education in England. On the completion of this education, about the close of the 12th century, he proceeded to the Continent to complete his studies, and spent some time in the school of Salerno, where it is probable that he enjoyed the instruction of Roger of Parma, Ricardus Salernitanus, and may have had among his fellow-students Aegidius of Corbeil. Probably after his return to England he served for a brief period on the staff of Archbishop Hubert Walter, after

whose death in 1205, but at an unknown period, Gilbert returned once more to the Continent, where it seems probable he spent the remainder of his life. This comports best with his extensive European reputation, his surname "Anglicus" and the comparative dearth in England of any facts relating to his life. The date of the Compendium I am inclined to place about 1240, prior to the literary activity of Ricardus Parisiensis or Richard of Wendover, Roland of Parma, Roger Bacon and Theodorus of Cervia. We may place his death, conjecturally, at about 1250.

The first edition of the Compendium is a small quarto of 362 folios (724 modern pages), five by seven inches in size, printed in double narrow columns, in black letter, perfectly legible and clear. The pagination shows some errors, but the text itself is remarkably accurate, though the presence of a multiplicity of contractions and ligatures renders the reading somewhat difficult to the modern student. On the last page we find the following colophon:

Explicit compendium medicine Gilberti Anglici correctum et bene emendatum per dominum Michaellem de Capella artium et medicine doctorem: ac Lugduni Impressum per Jacobum Saccon: expensis Vincentii de Portonariis. Anno Domini M.D.x. die vero vigesima mensis Novembris.

Deo Gratias.

The second edition (which I have not seen) is said to bear the title: "Laurea anglicana, sive compendium totius medicinae, etc," Geneva, 1608.

[pg 25]

It should be noticed that the title "Laurea anglicana" is not mentioned in the original edition of 1510, but is apparently due to the exuberance of enthusiasm of the editor of the later edition, whose taste seems to have been more flamboyant.

Various manuscript works of greater or less authenticity are ascribed to Gilbert by different authorities. Of these Mr. Kingsford furnishes the following list:

1. "Commentarii in Versus Aegidii de Urinis," quoted by John Gaddesden and probably authentic.
2. "Practica Medicinae," mentioned by Pits, but of doubtful authenticity.
3. "Experimenta Magistri Gilliberti, Cancellarii Montepessulani," noticed on page 2, but authenticity doubtful.
4. "Compendium super Librum Aphorismorum Hippocratis." MS. in Bodleian.
5. "Eorundem Expositio." MS. in Bodleian.
6. "Antidotarium." MS. in Caius College.

To these he adds, on the authority of Bale and Pits:

7. "De Viribus Aquarum et Specierum."
8. "De Proportione Fistularum."
9. "De Judicio Patientis."
10. "De Re Herbaria."
11. "De Tuenda Valentudine."
12. "De Particularibus Morbis."
13. "Thesaurus Pauperum."

All of these latter may be regarded as doubtful.

The authorities named by Gilbert are Pythagoras, Hippocrates, Plato, Aristotle, Galen, Rufus, Maerobius, Boetius, Alexander of Tralles, Theodorus Priscianus, Theophilus Philaretus, Stephanon (of Athens?), the Arabians Haly Abbas, Rhazes, Isaac Judaeus, Joannitius, Janus Damascenus, Jacobus Alucindi, Avicenna and Averroës; the Salernian writers, quoted generally as Salernitani and specifically Constantino Africanus, Nicholas Praepositus, Romoaldus Ricardus and Maurus, and two otherwise unknown authors, Terror and Funcius, classed by Gilbert as "*antiqui*." The latter author is also said to have written a "*Liber de lapidibus*." Certainly this list suggests a pretty good medical library for a practitioner of the 13th century.

[pg 26]

Dr. Payne calls attention to the fact that all these writers antedate the 13th century, and thus limit the period of Gilbert in antiquity. This is undoubtedly true with reference to authorities actually named, but does not exclude from consideration other writers quoted, but not named, whom we shall have occasion to refer to hereafter.

The Compendium opens with a very brief and modest foreword, couched in the following terms:

"Incipit liber morborum tam universalium quam particularium a magistro Gilberto anglico editus

ab omnibus autoribus et practicis magistrorum extractus et exceptus, qui compendium medicine intitulatur."

It will be observed that no claim whatever for originality is presented by the author. He calls his book a compendium extracted from all authors and the practice of the professors, and edited only by himself. The same idea is more fully emphasized later (f. 55c), where he says:

"Sed consuetudo nostra est ex dictis meliorum meliora aggregare, et ubi dubitatio est, opiniones diversas interserere; ut quisque sibi eligat quam velit retinere."

The self-abnegation implied in these extracts must not, however, be interpreted too literally, for the editorial "*dico*" on numerous pages, and even an occasional chapter marked "*Propria opinio*," testify to the fact that Gilbert had opinions of his own, and was ready on occasion to furnish them to the profession. On the whole, however, the "Compendium" is properly classified by the author as a compilation, rather than an original work.

The Compendium is divided into seven books, and the general classification of diseases is from head to foot—the usual method of that day. The modern reader will probably be surprised at the comprehensiveness of the work, which, besides general diseases, includes considerable portions of physiology, physiognomy, ophthalmology, laryngology, otology, gynecology, neurology, dermatology, embryology, obstetrics, dietetics, urinary and venereal diseases, therapeutics, toxicology, operative surgery, cosmetics and even the hygiene of travel and the prevention of sea-sickness. Some of these subjects too are discussed with an acuteness and a common sense quite unexpected. Of course, scholastic speculations, superstition, charms, polypharmacy and the use of popular and disgusting remedies are not wanting. Even the mind of a philosopher like Roger Bacon was unable to rise entirely above the superstition of his age. But the charms and popular specifics of Gilbert are often introduced with a sort of apology, implying his slight belief in their efficacy. Thus in his chapter on the general treatment of wounds (f. 87a) he introduces a popular charm with the following words:

"Alio modo, solo divino carmine confisi, quidam experti posse curari omnes plagas hoc."

"Carmine."

"Tres boni fratres per viam unam ibant, et obviavit eis noster dominus jesus christus et dixit eis, tres boni fratres quo itis, etc."

And again, in his discussion of the treatment of gout and rheumatism (f. 327b), Gilbert adds, under the title

Emperica

"Quamvis ego declino ad has res parum, tamen est bonum scribere in libro nostro, ut non remaneat tractatus sine eis quas dixunt antiqui. Dico igitur quod dixit terror: Si scinderis pedem rane viridis et ligaveris supra pedem podagrivi per tres dies, curatur; ita quod dextrum pedum rane ponas supra dextrum pedem patientis, et e converso. Et dixit Funcius, qui composuit librum de lapidibus, quod magnes, si ligatus fuerit in pedem podagrivi, curatur. Et alius philosophus dixit. Si accipiatur calcancus asine et ponatur ligatus supra pedem egri, curatur, ita quod dexter supra dextrum, et e converso. Et juravit quod sit verum. Et dixit terror quod si ponatur pes testudinis dexter supra dextrum pedem podagrivi, et e converso, curatur."

We may believe, indeed, that Gilbert would have preferred to follow in the therapeutic footsteps of Hippocrates, had he not disliked to be regarded by his colleagues as eccentric and opinionated. For he says in his treatment of thoracic diseases (f. 193c):

"Etenim eleganter dedit Ipo. (Hippocrates) modum curationis, sed ne a medicis nostri temporis videamur dissidere, secundum eos curam assignemus."

Gilbert was a scholastic-humoralistic physician *par excellence*, delighting in superfine distinctions and hair-splitting definitions, and deriving even pediculi from a superfluity of the humors (f. 81d). Of course he was also a polypharmacist, and the complexity, ingenuity, and comprehensiveness of his prescriptions would put to shame even the "accomplished therapist" of these modern days. In dietetics too Gilbert was careful and intelligent, and upon this branch of therapeutics he justly laid great emphasis.

The first book of the Compendium, comprising no less than 75 folios, is devoted entirely to the discussion of fevers. Beginning with the definition of Joannicius (Honain ebn Ishak):

"Fever is a heat unnatural and surpassing the course of nature, proceeding from the heart into the arteries and injuring the patient by its effects."

Gilbert launches out with genuine scholastic finesse and verbosity into a discussion of the questions whether this definition is based upon the *essentia* or the *differentia* of fever; whether the heat of fever is natural or unnatural, and other similar subtle speculations, and finally arrives at a classification of fevers so elaborate and complex as to be practically almost unintelligible to the modern reader.

The more important of these fevers or febrile conditions are:

Ephemeral
Hemitertian
Double quartan
Interpolated
Synocha
Causon synochides
Epilala
Quotidian
Double tertian
Quintan
Continued
Causon
Putrid
Lipparia
Tertian
Quartan
Sextan
Synochus
Synochus causonides
Ethica
Erratica

Some of these names are still preserved in our nosologies of the present day; others will be recalled by the memories of our older physicians, and a few have totally disappeared from our modern medical nomenclature.

Interpolated fevers are characterized by intermissions and remissions, and thus include our intermittent and remittent fevers; synochus depended theoretically upon putrefaction of the blood in the vessels, and was a continued fever. Synocha, on the other hand, was occasioned by a mere superabundance of hot blood, hence the verse:

"Synocha de multo, sed synochus de putrefacto."

Causon was due to putrefaction of bile in the smaller vessels of the heart, diaphragm, stomach or liver, and was an acute fever characterized by furred tongue, intolerable frontal headache, tinnitus aurium, constant thirst, delirium, an olive-colored face, redness and twitching of the eyes and a full, frequent and rapid pulse. Epiala and lipparia were febrile conditions concerning which there seems to have been much difference of opinion, even in the days of Gilbert. Apparently they were distinguished by variations of external and internal temperature, or by chills combined with fever. Febris ethica is our modern hectic fever. In the discussion of this last variety we are introduced to the "*ros*" and "*cambium*" of Avicenna, apparently varieties of hypothetical humors.

[pg 29]

All these fevers are regarded from the standpoint of Humoralism, and depend upon variations in the quantity, quality, mixture or location of the four humors, blood, phlegm, bile and black-bile (*melancholia*).

In the general treatment of febrile diseases, so-called preparatives and digestives are first employed to ripen the humors, after which evacuatives (emetics, cathartics, sudorifics, and occasionally even venesection) are utilized for the discharge of these peccant humors. Much emphasis is laid upon the dietetics of fevers, and this branch of treatment is highly elaborated. Complications are met by more or less appropriate treatment, and the condition of the urine is studied with great diligence. Venesection is recommended rather sparingly, and is never to be employed during the *dies caniculares* (dog-days) or *dies Aegyptiaci*, nor during conjunctions of the moon and planets, nor upon the 5th, 15th, 17th, 25th, 26th, or 27th days thereafter, etc.

Among the complications of fevers discussed by Gilbert, two seem sufficiently important to justify special attention. On folio 74b we find a section entitled "*De fluxu materie per parotidas venas*," in which he remarks that "Sometimes matter flows through the parotid veins behind the ears down to the neck and nares, and obstructs the passages for air, food and drink, so as to threaten suffocation." He cautions us against the use of repressives, "lest the matter may run to the heart," and recommends mollitives and dissolvents, such as butter, dyaltea, hyssop and especially newly shorn wool (*lana succida*), which, he says, is a strong solvent. Is this a reference to the septic parotitis not unfrequently seen in low fevers?

The following section, "*De inflatione vesice et dolore ejus*," discusses the retention of urine in fevers, and its treatment. Gilbert says: "Inflation of, and pain in the bladder are sometimes symptoms of acute fevers, since the humors descend into and fill the bladder." If this occurs in an interpolated (remittent) fever, he directs the patient to be placed in a bath of a decoction of pellitory up to the umbilicus, "*et effundet urinam*." If the complication occurs in one suffering from a continued fever, the bath should be made of wormwood and a poultice should be placed over the bladder and genitals, "*et statim minget*." The same effect may be produced by poultice mixed with levisticum (lovage) or leaves of parsley. Singularly enough the catheter is not mentioned, though this instrument, under the medieval name of *argalia* (cf. French algalie), is noticed frequently in the section devoted to vesical calculus.

[pg 30]

With the second book of the Compendium the system of the discussion of diseases *a capite ad pedes* is commenced, and produces some curious associates. To the modern physician the sudden transition from diseases of the scalp to fractures of the cranium seems at least abrupt, if not illogical. It seems, therefore, wiser, in a hasty review like the present, to take up the various pathological conditions described by Gilbert in their modern order and relations, and to thus facilitate the orientation of the reader.

The second book then opens with a consideration of the hair and scalp, and their respective disorders.

The hair is a dry fume (*fumus siccus*), escaping from the body through the pores of the scalp and condensed by contact with the air into long, round cylinders. It increases rather by accretion than by internal growth, and its color depends upon the humors. Thus red hair arises from unconsumed blood or bile; white hair, from an excess of phlegm; black hair, from the abundance of black-bile (*melancholia*), etc. The use of the hair is for ornament, for protection and for the distinction of the sexes. Numerous prescriptions for dyeing the hair, for depilatories (*psilothra*), for the removal of misplaced hair and for the destruction of vermin in the hair are carefully recorded.

Three varieties of soaps for medicinal use are described, and the process of their manufacture indicated. The base of each is a lixivium made from two parts of the ashes of burned bean-stalks and one of unslaked lime, mixed with water and strained. Of this base (*capitellum*), two parts mixed with one part of olive oil form the *sapo saracenicus*. In the *sapo gallicus* the base is made with the ashes of chaff and bean-stalks with lime, and to it is added goat's fat, in place of the oil. The *sapo spatareuticus* is made in a similar manner, except that oil replaces the goat's fat and the soap is made only during the dog days, since the necessary heat is to be supplied by the sun alone.

[pg 31]

Among the diseases of the scalp attention is given to alopecia, dandruff (*furfur*), tinea caries and various pustular affections, fanus (favus), rima, spidecia, achora, etc. Caries was a pustular disease, in which bristle-like hairs formed a prominent feature. Rima was a name applied by the physicians of Salerno to a superfluity of hair. In addition to these diseases of the scalp, we find also descriptions of gutta rosacea, morphea and scabies, a fairly extensive dermatology for this early day. In favus, Gilbert tells us that, after the removal of the pustules, there remain foramina, from which exudes a poisonous substance, resembling honey. Of course his system of treatment is rich in variety and comprehensiveness.

We may notice here too a few chapters on Toilet or Decorative Medicine, a branch of art to which modern physicians have devoted perhaps too little attention, with the natural result that it has fallen largely into the hands of charlatans of both sexes. Gilbert's chapter "*De ornatu capillorum*" offers the following sensible introduction: "The adornment of the hair affords to women the important advantages of beauty and convenience; and as women desire to please their husbands, they devote themselves to adornment and protect themselves from the charge of carelessness. In order, therefore, that our ministry may not be depreciated, and that we may not render ourselves liable to the accusation of ignorance, let us add a few words on the subject of the dressing of the hair and the general care of the person".

Accordingly Gilbert advises ladies who desire to retain or renew the charms of youth to soften the skin and open its pores by the use of steam baths and careful washing in warm water, followed by drying the surface with the finest cloths (*panno mundissimo*). If necessary, superfluous hair is to be removed by suitable depilatories, color to be restored to the pale cheeks by a lotion of chips of Brazil-wood⁶ soaked in rose-water and applied with pads of cotton; or, if the face is too red, it may be blanched by the root of the cyclamen (*panis porcinus*, sowbread) dried in an oven and powdered. A wealth of remedies for freckles, moles, warts, wrinkles, discolorations and other facial blemishes, with foul breath and fetidity of the armpits, is carefully recorded, and would suffice to establish the fortune of any of our modern specialists in female beauty. Finally a long chapter entitled "*De sophisticatione vulvae*" introduces us to a phase of decoration and sophistication which I would fain believe little known or studied in the development of modern civilization, in which we are prone at least to follow the advice of Hamlet, to

[pg 32]

"Assume a virtue, if you have it not."

At all events, we may congratulate ourselves that the details of these disgusting cess-pools of medical art have disappeared entirely from the pages of our modern text-books. Even Gilbert considers it advisable to preface this gruesome chapter with a sort of "*Caveat emptor*" apology to the reader:

"*Ut tamen secundum ordinem procedamus, in primis cognosctur cognoscere desiderantibus, ne dolus dolo patrocinetur, vel simplex dolose muscipula claudatur.*"

In the department of neurology Gilbert, after a philosophical discussion of the nature and variety of pain, devotes considerable chapters to the causes, symptoms, diagnosis and treatment of headache, hemicrania, epilepsy, catalepsy, analepsy, cerebral congestion, apoplexy and paralysis, phrenitis, mania and melancholia, incubus or nightmare, lethargy and stupor, lippothomia or syncope, sciatica, spasm, tremor, tetanus, vertigo, wakefulness, and jectigation (jactitation,

formication, twitching).

The third book of the Compendium opens with several chapters on the anatomy and physiology of the eye and the phenomena of vision. According to Gilbert, the eye consists of three humors, the albuginea (aqueous), the crystalline lens and the vitreous humor, and seven tunics, apparently

1. The conjunctiva
2. The albuginea or sclerotic
3. The cornea
4. The secundina (choroid)
5. The rethilea (retina)
6. The aranea (iris)
7. The uvea perforata (posterior layer of iris),

[pg 33]

though the definitions are not in all cases quite clear and definite. The tela aranea is said to take its origin from the retina, the retina from the optic nerve, and the latter from the rethi (rete, network) involving the substance of the brain. The cornea arises from the sclerotic tunic, the uvea and secundina take their origin from the pia mater, and the conjunctiva from a thin pellicle or membrane which covers the exterior of the cranium and is nourished by a transudation of the blood through the coronal suture. This pellicle is also said to have a connection with the heart, which arrangement furnishes a decidedly curious explanation of the mechanism of sympathetic and maudlin lachrymation. For, as Gilbert tells us, when the heart is compressed this pellicle is also compressed, and if any moisture is found beneath the pellicle it is expressed into the substance of the lachrymal gland by the constriction of the heart, and men in sorrow therefore shed tears. And again, if the heart is much dilated or elevated (by joy), this pellicle is also dilated or elevated, and if any moisture is found beneath it, it is expressed in the form of tears. Accordingly, men who are too joyful shed tears. Still further, drunken men, who are notoriously "moist," and have a superfluity of fluid between the pellicle and the skin of the cranium, are prone to weeping on slight provocation, and their tears are nothing more than an expression of this moisture, which makes its exit, not through the substance of the eye, but through the "lachrymal angle." Q.E.D.

This odd demonstration is followed by a succession of optical questions, which are discussed and answered in true scholastic style, with no little acuteness of observation. Thus: "*Utrum visus fiat intus suscipiendo?*" Is vision accomplished by something received into the eye? "*Utrum color fit de nocte?*" Does color exist at night? To the latter question Gilbert replies that in the darkness color exists in posse, but not in esse. Again: "Why do some animals see at night, some in the day only and some only in the twilight?" This phenomenon he ascribes to "the clearness and subtilty of the visual spirits, or to the strength, weakness, grossness or turbidity of the organs of vision." Some animals, he says, have (visual) spirits, subtle and clear as fire, and these animals see perfectly at night because the visual spirits (*spiritus visibilis*) are sufficient to illuminate the external air. "Why do objects in water seem nearer than those in air?" Gilbert explains this as follows: "Nothing appears distant, except as perceived through an extensive intervening medium. But our judgment is largely guided by the transparency of this medium, since the medium itself is not perceived with much accuracy, except when it is transparent. Accordingly, as the lucidity of air is greater than that of water, an object looks more distant through air than through water."

[pg 34]

"Why does not a single object appear double, inasmuch as we have two eyes?" To this he replies: "From the anterior part of the brain two optic nerves pass to the two eyes. But these two nerves unite at a certain point into one. Now, since the two nerves are of equal length, two images proceeding from a single object do not make the object seem double, but single, since the two images are united into one, and accordingly one object is seen as one image."

Other physiological speculations are introduced by the questions: "May one see an object not actually present?" "Why do some animals see best objects at a distance, others those near at hand?" "Why are objects seen in their proper position?" All these questions are answered in accordance with the scholastic formulae, and, not infrequently, with considerable acuteness.

A chapter entitled "*De signis oculorum*" also introduces us to a curious discussion of ocular physiognomy. Thus:

"When we see a man with large eyes, we argue that he is indolent."

"If his eyes are deeply situated in his head, we say that he is crafty and a deceiver."

"If his eyes are prominent, we say that he is immodest, loquacious and stupid."

"He whose eyes are mobile and sharp is a deceiver, crafty and a thief."

"He whose eyes are large and tremulous is lazy and a braggart (*spaciosus?*), and fond of women."

and so forth for an entire page of the Compendium.

Actual diseases of the eye are discussed in chapters on pain in the eyes, ophthalmia, pannus (including unguia, egilops and cataract), tumors of the conjunctiva, itching of the eyes, lachrymation, cancer, diseases of the cornea and uvea, diseases of the eyelids, lachrymal fistula and entropion. The treatment consists generally in ointments and collyria in abundance, but in

fistula lachrymalis incision and tents of alder-pith, mandragora (*malum terrae*), briony, gentian, etc., are recommended, and entropion is referred directly to the surgeon.

[pg 35]

The Latin term cataracta (also catarracta and catarractes) is applied to a disease of the eyes by Gregory of Tours (Hist. Franc., v. 6) as early as A.D. 650, and again by Constantine Africanus, of the school of Salerno, in 1075 (De Chirurg., cap. XXX). Singularly the word is not found in the "Chirurgia" of Roger of Parma, from whom Gilbert seems to have borrowed most of his surgical knowledge. Nor is it employed by Roland, Roger's pupil and editor. It recurs, however, in the *Glossulae Quatuor Magistrorum* (about 1270). But in all these writers cataracta seems to be included under the general term pannus, meaning opacities of every kind. Indeed Gilbert says, "Ungula, egilops, cataracta and macula are species of pannus, all arising from the same causes and cured by the same treatment." A few lines later, however, in distinguishing these various species, he adds: "Cataract arises from a humor collected between the tunics of the eye": and again it is said to be blood filling the veins of the eyes, and especially those of the conjunctiva, and derives its name *a caracteribus* (?). The truth is none of these writers seem to have any very definite knowledge of the distinction between the various opacities of the media of the eye, all of which were included under the general term pannus. But, what is more remarkable, Roger, Roland and The Four Masters make no mention of the possibility of surgical interference in these cases, but content themselves with elaborate collyria and ointments, or simply with internal treatment. Gilbert, on the other hand, while recommending these collyria and ointments, and even the internal remedies, adds the following:

"Interior autem macula, quae tela vocatur, subcornea situata, si v'l'e (?) purgatione precendente et colliriis et pulveribus non remouetur, acu torta immissa per caprinum angulum extrahatur aut inferius replicetur" (f. 137a).

And again (f. 141d):

"In uvea sunt largitas et constrictio et aqua sive cataracta... Aqua quandoque per medium pupille descendit, inferius stans, subuuea apparens, quae perfecte curatur secundum quosdam immisso acus aculeo per pupillam, ut extra fluat aqua."

Chapters on the physiology of hearing, smelling and the sensation of touch are followed by a discussion of the symptoms and treatment of earache, abscess of the ear, discharges (bloody and sanious) from the ear, worms and other foreign bodies in the ear, tinnitus aurium, deafness, coryza, epistaxis, nasal polypi, ozaena, cancer of the nose, fissures and ulcers of the lips, foul breath, diseases of the tongue, toothache, etc.

Physiognomy, a favorite theme with our author, appears again in a considerable chapter on the physiognomy of the nose, mouth, face and the teeth.

"He who laughs frequently is kind and genial in all things and is not worried over trifles."

"He who laughs rarely is contrary and critical."

"He who has large ears is stolid and long-lived."

"He who has a large mouth is gluttonous and daring."

"He whose teeth are defective and small is weak in his whole body."

[pg 36]

"He whose canine teeth are long and straight is a glutton and a rascal."

The department of genito-urinary diseases is introduced by a long chapter entitled "*De approximeron*," a formidable Latin word defined by Gilbert as sexual impotence. An elaborate discussion of the physiology of generation and the phenomena of impotence is followed by a collection of remedies for the condition, of which the best that can be said is that they are probably no less effective than most of the modern drugs recommended for the same purpose. Concerning a function over which so many fond superstitions still linger in the public mind we may, perhaps, charitably forgive Gilbert for the introduction of an empirical remedy for sterility, which, he assures us, he has often tried and with invariable success, and which enjoys the double advantage of applicability to either sex.

"Let a man, twenty years of age or more, before the third hour of the vigil of St. John the Baptist, pull up by the roots a specimen of *consolida major* (comfrey) and another of *consolida minor* (healall), repeating thrice the Lord's prayer (*oratio dominica*). Let him speak to no one while either going or returning, say nothing whatever, but in deep silence let him extract the juice from the herbs and with this juice write on as many cards as may be required the following charm:

"Dixit dominus crescite. †. Uthihoth. †. multiplicamini. †. thahechay. †. et replete terram. †. amath."

"If a man wears about his neck a card inscribed with these identical words written in this juice, he will beget a male. Conversely, if a woman, she will conceive a female" (f. 287b).

Gilbert, however, cautions the bearer of this potent charm of the possible dangers of satyriasis incurred thereby, and offers suitable remedies for so alarming a condition.

[pg 37]

Chapters on satyriasis, gomorrhea (gonorrhoea in its etymological sense, seminal emissions), with a third entitled "*De pustulis et *apostematibus virgae*" complete this department of medical art. The last chapter recognizes the venereal origin of the pustules and ulcers discussed, but furnishes no direct evidence of Gilbert's belief in the existence of a specific venereal poison.

While Gilbert is very scrupulous in his examination of the gross appearances of the urine in most diseases, his discussion of the diseases of the kidneys and bladder includes only pain in the kidneys, abscess of the kidneys, renal and vesical calculus, hematuria, incontinence of urine, dysuria and strangury.

The chapter on hematuria presents a very curious specimen of medieval pathology. Gilbert says: "The escape of blood in the urine is due sometimes to the liver, sometimes to the bile,⁷ sometimes to the kidneys and loins, sometimes to the bladder. If the blood is pure and clear, in large quantity, mixed perfectly with the urine and accompanied by pain in the right hypochondrium, it comes from the liver. Such urine presents scarcely any sediment. If the blood comes from the lili vein, it is also rather pure, but less pure than in the former case, nor is the quantity so great, while pain is felt over the region of the seventh vertebra, counting from below. If it comes from the kidneys, it is scanty and pure as it leaves the bladder, but soon coagulates and forms a dark deposit in the vessel, while pain is felt in the pubes and peritoneum.... If pus, blood and epithelium (*squamae*) are passed, and the odor is strong, it signifies ulceration of the bladder" (f. 275b).

Diabetes is defined as "An immoderate passage or attraction of urine from the liver to the kidneys and its passage through the kidneys, as the result of a warm or dry distemperature of these organs." The idea of some association of the liver and kidneys in the production of diabetes is at least as old as the eleventh century, and Gilbert's definition of the disease is undoubtedly borrowed from the "Practica" of John Platearius (A.D. 1075), of the school of Salerno. The symptoms, continual thirst, dryness of the mouth, emaciation, in spite of an inordinate appetite, frequent and profuse urination, are correctly given, but no knowledge of the presence of sugar in the urine is indicated.

Dyampnes (involuntary micturition) claims a page or more of explanation and treatment, and its frequent occurrence in old men and children is noticed.

[pg 38]

In the department of the diseases of women chapters are devoted to amenorrhoea, menorrhagia, hysteria (*suffocatio matricis*), prolapse, ulceration, abscess, cancer, dropsy and "ventosity" of the uterus (*physometra*).

In the allied department of obstetrics we find chapters on the signs of conception, on the urine in pregnant women, on difficult labor, prolapsus uteri, retention of the placenta, post partum hemorrhage, afterpains, and the oedema of pregnancy. The causes of difficult labor, according to Gilbert, are malposition, dropsy, immoderate size and death of the fetus, debility of the uterus and obstruction of the maternal passages. Malpositions are to be corrected by the hand of the midwife (*obstetrix*). Adjuvant measures are hot baths, poultices, inunctions, fumigations and sternutatories, and the use of certain herbs.

In the departments of general medicine not as yet entirely appropriated by specialists it will suffice to mention scrofula, pleurisy and pneumonia, hemoptysis, empyema, phthisis, cardiac affections, diseases of the stomach, liver and spleen, diarrhoea and dysentery, intestinal worms, dropsy, jaundice, cancer, rheumatism and gout, small-pox, measles, leprosy and hydrophobia, all of which claim more or less attention.

Peripneumonia and pleurisy are both inflammations of the chest, the former affecting the lungs, the latter the diaphragm and the pellicle which lines the ribs. The prominent symptoms of both diseases are pain in the chest or side, cough and fever and dyspnoea. Accidents or sequelae are hemoptysis, empyema and phthisis.

Empima (empyema) is the hawking-up of sanies, with infection of the lung and a sanious habit. Hence persons laboring under pneumonia or pleurisy are not necessarily empyemics, but when these diseases progress to such a point that blood and sanies are expectorated and the lung is infected, that is when the ulceration of the lungs fails to heal and corruption and infection occur, the disease becomes empima, and is with difficulty, or never cured.

Ptisis is a substantial consumption of the humidity of the body, due to ulceration of the lungs. For when a solution of continuity occurs in the lungs, the inspiratory and expiratory forces fail. Hence the lungs do not inspire sufficient air to mitigate the innate heat of the heart, and the heart fails to purify itself of the fumosity or fumous vapors generated in itself. Accordingly, deprived of the means of mitigating its heat or ventilating its fumosities, the spirits within it become unduly heated, and a consuming fire is generated in the entire body.

[pg 39]

The symptoms of ptisis are a continued fever, greater or less, detected in the palms of the hands and the soles of the feet, thirst, a roughness of the tongue, slenderness of the neck, wasting of the entire body, constipation, wasting and shrinking of the finger-nails and fingers, hollowness of

the eyes, pain in the left scapula extending to the shoulder, pharyngeal catarrh with abundant and mucilaginous sputum and a tendency to lachrymation. If the sputum thrown upon the coals emits a fetid odor, it is a sign of confirmed ptisis, which is incurable. The disease when it occurs in youths and young persons rarely lasts longer than a year, often terminates in less time, and may sometimes, by the aid of medicine, be prolonged for a greater period. If the sputum received during the night in a vessel is flushed in the morning with warm water, while some impurities remain upon the surface, the putrid matter will sink to the bottom (*sputum fundum petens*), and the indications are fatal. Likewise sharpness of the nose, hollow eyes, slender nails, falling hair, flattened temples and diarrhoea are of evil omen. These patients converse while dying, and die conversing (*moriendo loquentur, sed loquendo moriuntur*). Gilbert, of course, supplies a formidable array of remedies for the disease, but tells us that the "very latest" is cauterization over the clavicles (*Novissimum autem consilium est cauterium in furcula pectoris*).

The varieties of difficulty of breathing are classified under the titles of asma, dispnea, orthomia, hanelitus and sansugium. The last title is given to a condition in which, as Gilbert says, "A superfluous humor is abundant in the superficies of the lung, which compresses that organ and renders it unable to dilate in inspiration. Hence it labors in inspiration like a leech, from which the dyspnea derives its name."

Under the single title of "*cardiaca passio*" are included all possible diseases of the heart. The symptoms of this disease are said to be "palpitation, twitching of the limbs (*saltus membrorum*), perspiration, weakness of the nerves, facial pallor, weakness of the body as in hectic fever or phthisis, excessive pain and faintness over the precordia, a disposition to sleep and often constipation." The treatment is, of course, entirely symptomatic.

[pg 40]

Diseases of the digestive apparatus are discussed under the headings of difficulties of deglutition, canine appetite, bolismus (boulimia), disturbances of thirst, eructations, hiccup, nausea and anorexia, vomiting, anathimiasis (gastric debility), anatropha and catatropha (varieties of obstinate vomiting), pain in the stomach, abscess of the stomach, salivation, colic, dysentery and diarrhoea, intestinal worms, hemorrhoids, rectal tenesmus, prolapsus ani, fistula in ano, diseases of the liver, dropsy, jaundice and diseases of the spleen.

Abscess of the stomach sometimes manifests a circumscribed tumor, and accordingly, probably includes cancer of that organ. Approved remedies are the Al'mirabile, the stomatichon frigidum, calidum or laxativumvum, etc., stereotyped formulae, of which the composition is carefully recorded.

Dysentery is a flux of the bowels with a sanguinolent discharge and excoriation of the intestines. A variety called hepatic dysentery, however, lacks the intestinal excoriation. Diarrhoea is a simple flux of the bowels, without either the sanguinolent discharges or the intestinal excoriation. Lientery is a flux of the bowels with the discharge of undigested food, occasioned by irritability (*levitas*) of the stomach or intestines. Colical passion and iliac passion derive their names from the supposed origin of the pain in the colon or ileum, a remark which furnishes occasion for the statement that Gilbert divides the bowels into six sections, viz., the duodenum jejunum and ileum, and the orobus, colon and longaon (rectum).

Intestinal worms are not generated in the stomach, as Gilbert says, because of the great heat produced by the process of digestion. In the intestines they originate chiefly from the varieties of phlegm, e.g., saline, sweet, acid, natural, etc. The species mentioned specifically are lumbrici and ascarides or cucubitini, though the terms long, round, short and broad are also employed, and probably include the tape worm or taenia lata. The treatment of these parasites consists generally in the use of aromatic, bitter or acid mixtures, among which gentian, serpentaria, tithymal and cucumis agrestis are especially commended for lumbrici, and enemata of wormwood, lupinus, scammony, salt, aloes, etc., for ascarides.

The diseases of the liver, though not numerous, are allotted considerable space most of which is occupied by scholastic speculations and the usual rich supply of therapeutical suggestions.

Discrasia of the liver has several varieties, warm, cold, moist and dry, and seems nearly equivalent to our somewhat overworked term of "biliousness." Gilbert's favorite compounds for the relief of this condition are the Trifera sarracenicca, the Electuarium psilliticum and above all the Dyantos Besonis.

[pg 41]

Obstruction (*oppilatio*) of the liver or enfraxis is defined as a disease of the canals (*pori*), of which four are enumerated, to-wit, the meseraic, that of the convexity of the organ (*gibbus—ubi sunt exitus capillarium venarum*), the duct leading to the gall-bladder and that leading to the spleen. With an abundance of symptoms, it is singular that this comprehensive disease does not seem characterized by any constant or severe pain, as we might reasonably expect.

Abscess of the liver depends upon some vice of the blood, the bile, the phlegm or the black-bile. The general treatment is poultices and other maturatives, but, as the author adds rather sadly at the close, *ultima cura est per incisionem*.

Dropsy is discussed as an independent disease through the exhaustive speculations of thirty-two pages. Gilbert tells us it depends upon some fault of the digestive faculty of the liver, and he divides it into four species, to-wit, leucoflantia, yposarcha, alchitis and tympanitis, each of which

has its special and appropriate treatment. In the dreary waste of speculative discussion it is cheering, however, to observe Gilbert's positive recognition of the sphere of percussion indicated in the passage:

"*Et venter percussus sonat ad modum utris semipleni aqua et venta.*" (f. 250b.)

Ycteritia or jaundice receives equally thorough discussion through eight weary pages, including the usual polypharmaceutical treatment.

The spleen, Gilbert says, is sometimes the name of an organ, sometimes of a disease. As an organ it is spongy and loose in texture, and attracts and retains the superfluities of the black-bile, expelled from the liver for its own cleansing. Hence it is a servile and insensitive organ, and accordingly suffers different diseases, such as obstruction, tumors, hardening, softening, abscess, and sometimes flatulence or repletion. The symptoms and treatment of each of these morbid conditions, arising from either heat or cold, are discussed with exasperating thoroughness, and the chapter concludes with the composition and use of various specific remedies of compound character, bearing the impressive titles of Dyasene, Dyacapparais, Dyaceraseos (a mixture of cherry juice, honey, cinnamon, mastic and scammony) and Agrippa.

[pg 42]

Scrofulous swellings are carefully considered in a chapter entitled "*De scrophulis et glandulis.*" "Scrophulae and glandulae are hard swellings developing in the soft parts, as in the emunctory localities of the veins and arteries, particularly in the neck, armpits and groins, and sometimes in other places. They spring from the superfluities of the principal organs, which nature expels, as it were, to the emunctories and localities designed to receive this flux." ... "Hence they are often found the cause of scabies, tinea, malum mortuum, cancer, fistula, etc., and are called glandes. Sometimes, however, a dryer matter is finely divided and falls into several minute portions, from which arise many hard and globular swellings, called scrofulae from the multiplicity of their progeny, like that of the sow (*scrofa*). The disease is also called *morbus regius*, because it is cured by kings."

Gilbert advises that these swellings should not be "driven in" (*repercutienda*), but brought to suppuration generally by emollients and poultices. When softened they may be opened with a lancet and the pus allowed to escape gradually, but as this process is tedious, he prefers the entire removal of the glands with the knife, premissing, however, that no gland should be cut into which cannot be well grasped by the hand and pulled from its seat. This surgical manipulation is fully described, and is undoubtedly taken from the similar chapter of Roger. It is worthy of notice also that just at the close of this chapter, Gilbert mentions a swelling called "testudo," a gland-like, gaseous (*ventosa*) tumor, usually solitary and found in "nervous" localities, like the joints of the wrist and hand. He says it often occurs from fracture (*cassatura*?) of the nerves, is cured by pressure, friction or incision, but is not entirely free from danger. Possibly this may refer to ganglion. Now, Roger makes no mention whatever of "testudo," while Roland says:

"*Nota quod quamvis Rogerius non designat inter glandulum et testudinem, scias igitur quod testudo fit ex majori parte flegmatica, minori melancholie, glandula vero a contrario,*" a statement which might readily suggest the suspicion that Gilbert had before his eyes the text of Roland, or that, at least, he had not acquired his knowledge of testudo from Roger, his usual surgical authority.

[pg 43]

Gilbert's sections on goitre (*bocium gulae*)⁸ are interesting in themselves, and characteristic of the method adopted by him in his discussion of surgical or semi-surgical subjects. An introduction relative to the pathology of the disease and which seems to be original, is followed by a treatment, medical and surgical, adopted almost literally from the Chirurgia of Roger. Thus he says: "Goiter occurs most commonly among the inhabitants of mountainous regions, and is due to an amplification and dilatation of the veins, arteries and nerves, together with the soft tissues, occasioned by the north wind (*ventum boreale*), or some other confined wind, which during childhood has accumulated in (*coadunabatur*) and enlarged the part to the size of the goiter." After suggesting an analogy between the disease and the redness and turgidity of the neck produced by passion or in singing, he adds that some cases are due to an accumulation of spongy tissue between the veins and arteries, or to the use of flatulent food, and he even tells us that some old women know how to produce and remove goitrous swellings by means of certain suitable herbs known to them.

Under medical treatment we find the following: "Dig out of the ground while chanting a pater noster, a nut which has never borne fruit. The roots and other parts pound well with two hundred grains of pepper, and boil down in the best wine until reduced in volume to one-half. Let the patient take this freely on an empty stomach until cured."

Another more elaborate prescription consists of a long list of ingredients, including burnt sponge, saponaria, the milk of a sow raising her first litter, with numerous simple herbs, and the sole object for which this nonsensical farrago is introduced here is to add that both these prescriptions are copied from the surgery of Roger. It is important too to remark here that we owe to Roger the introduction of iodine, under the form of burnt sponge, into the treatment of goiter.

In the failure of medical treatment, Gilbert directs the employment of surgical means, e.g., the use of setons, or, in suitable cases, extirpation of the goiter with the knife. If, however, the tumor

is very vascular, he prefers to leave the case to nature rather than expose the patient to the dangers of a bloody operation. The whole discussion of goiter is manifestly a paraphrase of the similar chapter of Roger, who also introduced into surgical practice the use of the seton.

[pg 44]

In Gilbert's chapter entitled "*De arthretica passione et ejus speciebus*," we are introduced to the earliest discussion by an English physician of that preeminently English disease—gout. We may infer, too, from the length of the discussion (thirty or more pages) that this was a disease with which Gilbert was not only familiar, but upon the knowledge of which he prided himself greatly. Indeed, it is one of the few diseases of the Compendium in which the author assumes the position of a clinician and introduces examples of the disease and its treatment taken from his own clientele. We shall, therefore, follow our author here rather more carefully and literally than usual, that we may learn the views of an English physician of the thirteenth century on, perhaps, the most characteristic disease of his countrymen.

Gilbert says: "Arthetica is a disease of the joints arising from a flux of humors descending into their continuity (*concoathentionem*). The name is derived from the Latin *artus*, a joint, and the disease comprehends three species, viz., *sciatica*, disease of the scia, or the ligaments uniting the spine with the hip; *cyragra*, disease of the joints of the hands; and *podagra*, disease of the bones and joints of the foot, due to the descent of humors into their continuity. Sometimes, too, the disease affects other organs, occasioning pain in sensitive members, as, e.g., the head, and then derives its name from the part affected, as *cephalea*, *emigranea* or *monopagia*. Occasionally likewise some humor runs down (*reumatizat*) into the chest, spreading over the nerves of the breast or those of the spine between the vertebrae, and sometimes to other places. Hence the disease derives the general name gout (*gutta*), from its resemblance to a drop (*gutta*) trickling or falling downward and flowing over the weaker organs, which receive the humor. For gout arises particularly from rheumatic causes. Now, as the humors are rather uncontrollable (*male terminabiles*) fluids, they flow towards the exterior and softer parts, like the flesh and skin, which receive their moisture and being soft, dilatible and extensible, there results some swelling. But if the humors are hard and dry, they are confined within the interior of the organs, such as bones, nerves and membranes: and these, being hard in themselves, do not receive the moisture, nor suffer extension or dilatation, and thus no swelling results. Since, therefore, the material of this variety of arthetica, in which no swelling is present, is formed of grosser and harder substance and is found in the vicinity of hard and cold localities, it is dissolved slowly and the disease is not cured until this solution takes place. That form of the disease, however, in which there is swelling from a subtile and liquid material deposited in the soft parts is the more quickly cured. Hence swelling is the best sign of curability. This is most evidently true in podagra, unless the *materies morbi*, by reason of its scarcity, produces no enlargement of the affected part."

[pg 45]

Quoting the words of Rhazes, Gilbert tells us that the *materies morbi* of gout is, for the most part, crude and bloody phlegm. Rarely is it bilious, and still more rarely, melancholic. If, however, it is compounded, it consists chiefly of bile mixed with a subtile phlegm, and more rarely, of phlegm mixed with black bile (*melancholia*), occasionally of black bile mixed with blood. The mixture of black bile and blood or bile is very rare, and still rarer a mixture of all the humors according to their proportion in the body.

If the color of the affected part is red, it indicates that the *materies morbi* is sanguineous; if greenish-yellow (*citrinus*), that it is bilious; if whiter than the general color of the body, that the materies is a subtile phlegm. If the color shades away into black, it does not signify necessarily that the materies is simply black bile, for such a color occurs at the close of acute abscesses, or from strangulation of the blood. But if, together with the black color, we find the tissues cold and no increase of heat in the affected part, this indicates that the *materies* is black bile.

By touching the diseased part we determine its heat or coldness, hardness or softness, roughness or smoothness, fullness, distention or evacuation, all of which signs possess special significance.

The antecedent causes of gout, Gilbert tells us, are a heat too solvent, cold too constringent (f. 311 c), sometimes a strong bath or a severe journey in a plethoric person (*in plectorico*), again excessive coitus after a full meal (*satietaem*), or even habitual excess, by which the joints are weakened and deprived of their natural heat and subtile moisture. Hence boys and eunuchs are not commonly affected by gout—at least boys under the age of puberty. Women, too, do not usually suffer from this disease, because in coitus they are passive, unless their menstrual discharge is suspended. Again gout sometimes arises from infection of the primary semen; for a chronic disease may be inherited by the offspring and affect the material causes, i.e., the humors. Flatulence (*ventositas*) is likewise a cause of gout, as we have already hinted.

[pg 46]

In gout of the sanguineous type the favorite remedy of Gilbert was venesection, pushed to extremes which suggest the bloody theories of his later confrere Bouillaud. This bloodletting, however, was always to be practiced on the side opposite to that affected by the disease, as he tells us, for two reasons: First to solicit the peccant material to the opposite side; and, second, to retard its course toward the seat of the swelling. If, therefore, the disease is in the right foot, he bleeds from the basilic vein, or some of its branches, in the right hand. No other vein should be taken, but if neither the basilic vein nor one of its branches can be found, the bleeding may be performed upon the median vein, for certain branches of the basilic and cephalic veins unite to form the median. If the disease is in the hand, the material may be diverted in two ways, either to the other hand or to the opposite foot. Indeed, blood may be taken from both these parts in succession. The quantity of blood withdrawn should be in accordance with the strength of the

patient, the character of the swelling, the pulsation, distention, heat and redness of the affected part. But it should be repeated frequently, and this bloodletting then frequently suffices, in itself, to cure the disease.

Gilbert continues: "I will tell you also what I myself saw in a woman suffering and screaming with pain in her right wrist (*assuere?*), which was greatly swollen, hot, red and much distended. She was fat, full-blooded, and before the attack had lived freely on milk and flesh. Accordingly she was robust, and I bled her from the basilic vein of the left hand and the saphena of the right foot, both within an hour. Each hour I withdrew a half-pound of blood, then I fed her and for three hours I drew half a pound of blood from the saphena. In the last hour the pain and throbbing (*percussio*) ceased entirely, and the woman begged me to bleed her again from the hand, for she had experienced great relief. I wished, however, to divert the material to the lower extremities for two reasons, one of which I ought not to mention in this place, while the other is useful, and indeed necessary in such cases. You should know that this woman was suffering pain in her left hand also, though this pain was of a less severe character than in the right. For this reason I desired to divert the peccant matter downward, a point which the physician should consider and observe. Once, while treating a man suffering from sanguineous gout, the pain of which involved the joints between the assuerus and the racheta (?) of the right hand, I asked him whether any pain was felt in the other hand or in the feet. He replied that similar pain was felt in the left hand or its joints, and that hitherto it had been more severe, but that no pain had ever been experienced in the feet. Hence I was unwilling to bleed him at all from the left hand, but I bled him from the right foot. A physician who had treated him before, and had bled him from the right hand for acute swelling of the joints of the left, quieted, indeed, the pain in the left hand, but diverted the disease to the right, where a swelling developed larger than in the left. And when I asked him about this, he understood that I knew more about medicine than the other doctor did. And this is one of the reasons why one ought to divert the material to another part, especially when the pain is so located that it may be increased at the beginning. For under such conditions we ought to refrain from bleeding, frictions and other treatment which may attract the *materies morbi* to the part. Indeed we ought to require derivation of the materies to another part whenever the affected locality contains one of the nobler organs, towards which the material is directing, or may direct its course. For instance: A person is suffering pain in the joints of the right hand, but has also an acute swelling in the bladder, the kidneys or the womb. Now, I say that in such a case we ought not to bleed from the hand, because if we do we shall injure the organ affected by the swelling. Perhaps, however, we may bleed from the right foot, provided we understand that there is on the right side a sanguineous tumor, the danger of which is greater than that of the swelling on the right hand. Again, suppose in the liver or in the right kidney an acute tumor, and in the joints of the right hand there is present a moderate pain. I say that we ought first to medicate the more dangerous lesion, and, possibly, two results may be obtained by the attraction of the peccant material. Or suppose a woman has gout in her hand, and with this a suppression of the menstrual flow. I say she ought to be bled from the foot and not from the hand for two objects, to solicit the material from the diseased hand, and to provoke a return of the menstrual discharge.

[pg 47]

"But to return to our original patient. I may say that after the third venesection, with an interval of two hours, I withdrew a half-pound of blood from the saphena vein, and that night she slept, although she had not slept for many nights. And I did nothing more, except to prescribe a light and cool diet. The third day after the bleeding she was entirely free from any trouble in her hand. Hence I say that we ought in such cases to begin our treatment by venesection."

After this sanguinary introduction, Gilbert soothes the diseased part with cooling and astringent ointments, unless these occasion pain, in which event he omits them entirely and trusts the case to nature, "*quoniam natura per se curabit.*"

[pg 48]

The vigorous plan of treatment thus outlined Gilbert seems to regard as original and peculiar to himself, for the next chapter bears the title, "The treatment of gout according to the authorities (*secundum magistros*)." Here he says he quotes the opinions of the modern teachers and writers, who lay down definite rules for the guidance of the physicians.

Among these he mentions, as primary and of general application, the rule that, before all things, the body must be purified, either by venesection in cases where the material is sanguineous, or by purgation in other varieties of the disease. If the cause is rheumatic in its nature, fomentations should never be employed, for fear of increasing the flux. That the peccant material is to be eliminated gradually by mild remedies, just as it accumulated by degrees. In all cases of gout, and in all chronic diseases generally, much attention must be devoted to the stomach, since if this organ rejects the medicine, the latter must be at once abandoned, lest the stomach becomes weakened and even other organs, and thus the humors flow more readily (*magis reumatizarent*) to the joints, etc.

These general medical rules are succeeded by some twenty pages devoted largely to special formulae for the different forms of gout, with remarks as to their applicability to the different varieties of the disease. Most of the formulae bear special titles, apparently to lend the weight of a famous name to the virtues of the prescription itself, something as in these modern days we speak of "Coxe's Hive Syrup," "Dover's Powder," "Tully's Powder," etc. Thus we read of the "*Pilulae artheticae Salernitorum*," the "*Cathapcie Alexandrine*," the "*Oxymel Juliani*" the "*Pilulae Arabice*," the "*Pulvis Petrocelli*," the "*Oleum benedictum*," the "*Pilulae Johannis*," etc. It is important, too, to remark that the active ingredient of very many of these formulae is the root

called hermodactyl, believed by the majority of our botanists to be the *colchicum autumnale*.

[pg 49]

Gilbert's discussion of gout closes with a short and characteristic chapter entitled "*Emperica*," in which he remarks: "Although I perhaps demean myself somewhat in making any reference to empirical remedies, yet it is well to write them in a new book, that the work may not be lacking in what the ancients (*antiqui*) have said on the subject. Accordingly I quote the words of Terror. If you cut off the foot of a green frog and bind it upon the foot of a gouty patient for three days, he will be cured, provided you place the right foot of the frog upon the right foot of the patient, and vice versa. Funcius, also, who wrote a book on stones, said that if a magnet was bound upon the foot of a gouty patient, he is cured. Another philosopher also declared that if you take the heel-bone of an ass and bind it upon the foot of the patient, he is cured, provided that you take the right bone for the right foot, and conversely, and he swore this was true. Terror also said that if the right foot of a turtle is placed upon the right foot of a patient suffering from the gout, and conversely, he will be cured."

Gilbert's discussion of leprosy (*De lepra*, f. 336 d) covers twenty pages and, according to Sprengel, is "almost the first correct description of this disease in the Christian West." Freind says this chapter is copied chiefly from Theodorus of Cervia. See page 3 ante. If, however, I am correct in my conjecture that the Compendium was written about the year 1240, the copying must have been done by Theodorus, whose "Chirurgia" did not appear until 1266.

Leprosy is defined as a malignant disease due to the dispersion of black bile throughout the whole body, corrupting both the constitution (*complexionem*) and the form of its members. Sometimes, too, it occasions a solution of continuity and the loss of members.

The disease is sometimes congenital, arising from conception during the menstrual period. For the corrupt blood within the maternal body, which forms the nourishment of the fetus, leads likewise to the corruption of the latter. Sometimes the disease is the result of a corrupt diet, or of foul air, or of the breath or aspect of another leper. Avicenna tells us that eating fish and milk at the same meal will occasion the same result. Infected pork and similar articles of diet may likewise produce the disease. Cohabitation with a woman who has previously had commerce with a leper may also produce infection.

[pg 50]

Among the general symptoms of leprosy Gilbert enumerates a permanent loss of sensation proceeding from within (*insensibilitas mansive ad intrinseco veniens*) and affecting particularly the fingers and toes, more especially the first and the little finger, and extending to the forearm, the arm or the knees; coldness and formication in the affected parts; transparency (*luciditas*) of the skin, with the loss of its natural folds (*crispitudines*), and a look as if tightly stretched or polished; distortion of the joints of the hands and feet, the mouth or the nose, and a kind of tickling sensation as if some living thing were fluttering within the body, the thorax, the arms or the lips. There is felt also a sensation of motion, which is even visible also by inspection. Feter of the breath, the perspiration and the skin are likewise noticeable. The localities affected lose their natural hair and are re-covered with very fine hairs, invisible except when held between the eye and the sun. The hair of the eyebrows and the eyelashes are lost—one of the worst of symptoms. There are present also hoarseness and an obstruction of the nostrils, without any visible cause. When the patient takes a bath the water runs off the affected localities as if they had been greased—another sign of evil omen. The angles of the eyes are rounded and shining. The skin, even when unaffected by cold, or other similar cause, is raised into very minute pimples, like the skin of a plucked goose. The blood in venesection has an oily appearance, and displays small particles like sand. Small tumors accompany the depilation of the eyebrows. Lepers are unusually and unduly devoted to sexual pleasures, and suffer unusual depression after sexual indulgence. The skin is tormented with a constant itching, and is alternately unduly hot or cold. Small grains are found under the tongue, as in leprous hogs.

Gilbert divides leprosy into four varieties, *elephantia*, *leonina*, *tyria* and *allopicia*, the pathology, symptoms and treatment of each of which are presented with wearisome minuteness and completeness. A long chapter, entitled "*De infectione post coitum leprosi*," discusses the transmission of the disease by means of sexual intercourse, and suggests the possible confusion of lepra and syphilis.

The usual catalogue of specific remedies terminates the discussion.

An interesting chapter on small-pox⁹ and measles, "*De variolis et morbillis*," gives us the prevailing ideas relative to these diseases in England during the thirteenth century. Premising his remarks with a classification of diseases as follows:

Diseases universal and infectious—like *morphoea*, *serpigo*, *lepra*, *variolae et morbilli*.

Diseases universal but not infectious.

Diseases infectious but not universal—like *noli me tangere*.

Diseases neither infectious nor universal.

[pg 51]

Gilbert classifies *variolae et morbilli* among the universal and infectious diseases, and in the species *apostemata*. To this latter species belong also *ignis Persicus*, *carbunculus* and *antrax*.

Variolae et morbilli arise from moist matter confined in the body and turbid, like turbid blood. Hence the disease occurs most commonly in boys and in those who are careless about cleanliness and neglect venesection. It is the result of a disposition of the blood resembling putrescence, in which there occurs an external ebullition in the efforts of nature to purify the interior of the body and to expel to the surface the virulent material within. Accordingly the common people declare that persons who have suffered from *variolae et morbilli* never acquire leprosy. Occasionally, too, the disease arises from excessive corruption of matter in repletion of blood, and hence it is more frequent in sanguineous diseases, like synocha, and during the prevalence of south winds or the shifting of winds to the south, and in infancy—the age characterized particularly by heat and moisture.

The eruptions vary in color in accordance with the mixture of the different humors with the corrupt blood. Hence some are light colored, some the color of saffron, some red, some green, some livid, some black, and the virulence of the disease is the greater, the nearer the color approaches to black. There are, too, four varieties of the eruption, distinguished by special names. When the eruption is light colored and tends to suppuration, it is called *scora*. When it is very fine and red, it is called *morbilli* or *veterana*. The distinction between *variolae* and *morbilli* is in the form and matter of the disease, for in *variolae* the pustules are large and the matter bilious (*colerica*), while in *morbilli* the eruption is smaller and does not penetrate the skin (*non-pertransit cutem*). *Variolae*, on the contrary, forms a prominent pustule (*facit eminentiam*). A third form of the disease displays only four or five large, black pustules on the whole body, and this form is the most dangerous, since it is due to an unnatural black bile, or to acute fevers, in which the humors are consumed. This variety bears the name of *pustula*. A fourth form is called *lenticula*. This latter form occurs sometimes with fever, like synocha, sometimes without fever, and it arises from pestilential air or corrupt food, or from sitting near a patient suffering from the disease, the exhalations of which are infectious.

[pg 52]

The premonitory symptoms of *variolae* are a high fever, redness of the eyes, pain in the throat and chest, cough, itching of the nose, sneezing and pricking sensations over the surface of the body.

Morbilli is a mild disease, but requires protection from cold, which confines and coagulates the peccant matter.

Attention is directed to the not infrequent ulcers of the eyes, which occur in *variolae* and may destroy the sight; also to ulcerations of the nose, throat, oesophagus, lungs and intestines, the latter of which often produce a dangerous diarrhoea.

When *variolae* occurs in boys, it is recommended to tie the hands of the patient to prevent scratching.

Whey is said to be an excellent drink for developing the eruption of *variolae*, and the time-honored saffron (*crocus*) appears in several of Gilbert's prescriptions for this disease. Here, too, we find the earliest mention of the use of red colors in the treatment of *variolae* (f. 348 c):

"*Vetule provinciales dant purpuram combustam in potu, habet enim occultam naturam curandi variolas. Similiter pannus tinctus de grano.*"

Acid and saline articles of food should be avoided, sweets used freely, and the patients should be carefully guarded from cold.

Not the least interesting pages of the Compendium are those (there are about twenty of them) devoted to the discussion of poisons, poisoned wounds and hydrophobia.

An introductory chapter on the general subject of the character of poisonous matters, illustrated by some gruesome and Munchausen-like tales, borrowed mainly from Avicenna and Ruffus, on the wonders of acquired immunity to poisons, the horrors of the basilisk, the *armaria* (?), the deaf adder (*aspis surda*) and the red-hot *regulus* of Nubia, leads naturally to the consideration of some special poisons derived from the three kingdoms of nature. Very characteristically Gilbert displays his caution in the discussion of a dangerous subject by the following preface:

Abstineamus a venenis occultis quae non sunt manifesta, ne virus in angues adjiciamus, aut doctrinam perniciosam tradere videamur (f. 351 a).

[pg 53]

Beginning then with metallic mercury (*argentum vivum*), he considers the poisonous effects of various salts of lead and copper, the vegetable poisons hellebore, anacardium (*anacardis?*), castoreum, opium and cassilago (*semina hyoscyami*), and then proceeds to the bites or rabid men and animals, hydrophobia, and the bites of scorpions, serpents and the *animalia annulosa*, that is, worms, wasps, bees, ants and spiders.

Space does not permit a careful review of this interesting subject, but a novel form of poisoning by the use of quicksilver is startling enough to claim our attention. Gilbert tells us that pouring metallic mercury into the ear produces the most distressing symptoms, severe pain, delirium, convulsions, epilepsy, apoplexy and, if the metal penetrates to the brain, ultimate death. In the treatment of this condition certain physicians had recommended the insertion into the ear of a thin lamina of lead, upon which it was believed that the mercury would fasten itself and might thus be drawn out. Avicenna objected to this that the mercury was liable to speedily pass into the

ear so deeply as to be beyond the reach of the lead. Gilbert suggests as an improvement of the treatment that a thin lamina of gold be substituted for the lead, "because mercury thirsts after gold as animals do after water, as it is held in the books on alchemy" (*in libris allzinimicis*). This fact, too, he tells us can be easily demonstrated externally by placing upon a plate a portion of gold, and near, but not in contact with it, a little quicksilver, when the silver, he says, will at once "leap" upon the gold. Avicenna suggests that the patient stand upon the foot of the side affected, lean his head over to the same side, steady it in that position with the hands, and then leap suddenly over upon the other foot—demonstrating thereby his knowledge of both gravity and inertia. Manifestly our "laboratory physicians" of the present day can assume no airs of priority!

The Compendium closes with two very sensible chapters on the hygiene of travel, entitled "*De regimine iter agentium*" and "*De regimine transfretantium*."

[pg 54]

In the hygiene of travel by land Gilbert commends a preliminary catharsis, frequent bathing, the avoidance of repletion of all kinds, an abundance of sleep and careful protection from the extremes of both heat and cold. The strange waters may be corrected by a dash of vinegar. Some travelers, he tells us, carry with them a package of their native soil, a few grains of which are added to the foreign waters, as a matter of precaution, before drinking. The breakfast of the traveler should be light, and a short period of rest after a day's travel should precede the hearty evening meal. Leavened bread two or three days old should be preferred. Of meats, the flesh of goats or swine, particularly the feet and neighboring parts, which, Gilbert tells us, the French call *gambones*, the flesh of domestic fowls and of the game fowls whose habitat is in dry places, is to be preferred to that of ducks and geese. Of fish, only those provided with scales should be eaten, and all forms of milk should be avoided, except whey, "which purifies the body of superfluities." Fruits are to be eschewed, except acid pomegranates, whose juice cools the stomach and relieves thirst. Boiled meats, seasoned with herbs like sage, parsley, mint, saffron, etc., are better than roasted meats, and onion and garlic are to be avoided.

The primitive conditions of land travel in the days of Gilbert are emphasized by his minute directions for the care of the feet, which he directs to be rubbed briskly with salt and vinegar and then anointed with an ointment of nettle-juice (*urtica*) and mutton-fat, or with a mixture of garlic, soap and oil. If badly swollen, they should be bathed, before inunction, with a decoction of elder-bark and other emollients.

In travel by sea, Gilbert tells us the four chief indications are to prevent nausea, to allay vomiting, to palliate the foul odor of the ship and to quiet thirst.

For the prevention of nausea he recommends the juice of acid pomegranates, lemons, etc., or a decoction of parsley or sweet cicely (*cerfolium*). The traveler should endeavor to sit with his head erect, should avoid looking around, but maintain his head as immovable as possible, and support himself by a firm grasp upon some beam of the ship. Some sweets may be sucked, or he may chew a few aromatic seeds. If vomiting ensues, acid or sweet pomegranates, figs or barley-sugar (*penides*) may be taken sparingly, but no food should be ingested until the stomach is thoroughly quieted. Then the patient may take a little *stomatichon* or *dyantos*, and a small portion of digestible food. As the diet must necessarily consist largely of salty food and vegetables, these should be cooked in three or four different waters, and then soaked in fresh water. A little aromatic wine will also benefit the patient, and a few aromatic seeds chewed in the morning are also of service.

[pg 55]

The effect of the foul odors of the ship may be combatted by the use of aromatic electuaries, "which comfort the heart, the brain and the stomach." The patient should be removed to some quiet portion of the ship, as distant as possible from the channels for the discharge of the bilgewater, and short walks upon the upper deck will contribute to convalescence. Frequent changes of clothing will palliate the annoyance of fleas and pediculi. Drinking water may be purified by aëration, or by straining, boiling and subsequent sedimentation and removal of the sediment by filtration through fresh and clean sand. For the wealthy, the water may be distilled in an alembic, if such an apparatus is obtainable. Avicenna says that bad water may be corrected by the addition of vinegar. Exposure to the midday sun and to the nocturnal cold, constipation and diarrhoea should be avoided, and prompt attention should be given to all disorders of the health.

To these wise counsels Gilbert courteously adds a medieval *bon voyage* in these words:

"*Dominus autem omnia dirigit in tranquillitate. Amen.*"

It has been already remarked upon a preceding page that Gilbert of England was not a surgeon. Nevertheless it is only fair to say that the surgical chapters of the Compendium present a more scientific and complete view of surgical art, as then known, than any contemporaneous writings of the Christian West, outside of Italy.

It is well known that during the Middle Ages the practice of surgery in western Europe was generally regarded as disreputable, and operative surgery was for the most part relegated to butchers, barbers, bath-keepers, executioners, itinerant herniotomists and oculists, *et id omne genus*, whose pernicious activity continued to make life precarious far down into the modern period.

In Italy alone did surgery vindicate for itself an equality with medicine, and the pioneer of this

advance was Roger of Parma, who, as we have seen, flourished early in the thirteenth century. Roger and his pupil Roland, with the somewhat mythical "Four Masters" (*Quatuor Magistri*), were the surgical representatives of the School of Salernum, while Hugo (Borgognoni) di Lucca and his more famous son Theodorus represented the rival school of Bologna. Equally famous Italian surgeons of this century were Bruno of Logoburgo (in Calabria) and Guliemus of Saliceto (1275), the master of Lanfranchi (1296). Gilbert of England, as a pupil of Salernum, naturally followed the surgical teachings of that school, and we have already noticed that his chapters on surgery are taken chiefly from the writings of Roger of Parma, though the name of neither Roger, nor indeed of any other distinctly surgical writer, is mentioned in the Compendium. How closely in some cases Gilbert followed his masters may best be seen by a comparison of their respective chapters upon the same subject. I accordingly introduce here for such comparison Roger's chapter on wounds of the neck, and the corresponding chapter of Gilbert. Roger says:

[pg 56]

"De vulnere quod fit in cervice.

"Si vero cum ense vel alio simili in cervice vulnus fiat, ita quod vena organica incidatur, sic est subveniendum. Vena tota sumatur (suatur) cum acu, ita quod vena non perforetur, et ex alia parte acus cum filo ei inhaerente ducatur, et cum ipso filo nectatur atque stringatur, quod sanguinem non emittat: et ita facias ex superiori parte et inferiori. In vulnere autem pannus infusus mittatur, non tamen de ipso vulnus multum impleatur. Embrocha, si fuerit in myeme, superponatur quosque (quousque) vulnus faciat saniem. Si vero fuerit in aestate vitellus avi semper superponatur. Quum autem saniem fecerit, cum panno sicco, unguento fusco et caeteris bonam carnem generantibus, adhibeatur cura, ut in caeteris vulneribus. Quum vero extremitatem venae superioris partis putruisse cognoveris, fila praedicta dissolvas, et a loco illo removeas: et deinde procedas ut dictum est superius. A. Si vero nervus incidatur in longum aut ex obliquo, sed non ex toto, hac cura potest consolidari. Terrestres enim vermes, idest qui sub terra nascuntur, qui in longitudine et rotunditate lumbricis assimilantur, et apud quondam terrestres lumbrici dicuntur, accipiantur et aliquantulum conterantur et in oleo infusi ad ignem calefiant: et nullo alio mediante, ter vel quater, vel etiam pluries, si opportunum videbis, plagae impone. Si vero incidatur ex obliquo totus, minime consolidatur: praedicto tamen remedio non coadjuvante saepe conglutinatur. Potest etiam cuticula, quae supra nervum est, sui, pulvisque rubens, qui jam dictus est, superaspergi, quae cura non est inutilis, aliquos enim non solum conglutinatas, sed etiam consolidatas, nostra cura prospeximus. Si vero locus tumet, embrocham illam, quam in prima particula ad tumorem removendum, qui ex percussura contigit, praediximus, ponatur, quousque talis tumor recesserit."

Gilbert, after premising two short chapters entitled "*De vulneribus colli*" and "*De perforatione colli ex utraque parte*," continues as follows:

[pg 57]

"De vena organica incisa.

"Si vena organica in cervice incidatur: tota vena suatur cum acu, ita quod vena non perforetur, et ex alia parte acus cum filo ei adherente ita nectatur atque stringatur quod (non) emittat sanguinem, et ita fiat ex superiori parte et inferiore vene. In vulnere autem pannus infusus in albumine ovi mittatur, nec tamen de ipso panno vulnus multum impleatur. Embrocha vero superius dicta, si in hyeme fuerit, superponatur, donec vulnus saniem emittat. Si vere in estate, vitellum ovi tum super ponatur, et cum saniem fecerit, panno sicco, et unguento fusco et ceteris regenerantibus carnem, curetur. Cum vero extremitatem vene superioris et inferioris putruisse cognoveris, fila dissolvantur et a loco removeantur, et deinde ut dictum est procedatur.

"De incisione nervi secundum longum aut secundum obliquum.

"Si vero secundum longum aut obliquum nervi incidantur, et non ex toto, ita consolidamus. Terrestres vermes, qui sub terra nascuntur, similes in longitudine et rotunditate lumbricis, qui etiam lumbrici terre appellantur: hi aliquantulum conterantur et in oleo infusi ad ignem calefiant, et nullo aliomediante, ter vel quater vel pluries, si opportunum fuerit, plagelle impone. Si vero ex oblique nervus incidatur, eodem remedio curatur, et natura cooperante saepe conglutinatur. Potest quoque cuticula quae supra nervum est sui, et pulvis ruber superaspergatur. Nervos enim conglutinari et consolidari hoc modo sepius videmus. Si vero locus tumeat, embrocha, praedicta in vulnere capitis quae prima est ad tumorem removendum, superponatur, quousque tumor recesserit. Si vena organica non inciditur, pannus albumine ovi infusus in vulnere ponatur. Embrocha vero post desuperponatur" (f. 179 c).

The selection and collection of words and phrases in these two passages leaves little doubt that one was copied from the other. Indeed, so close is their resemblance that it is quite possible from the one text to secure the emendation of the other. Numerous similar passages, with others in which the text of Gilbert is rather a paraphrase than a copy of the text of Roger, serve to confirm the conclusion that the surgical writings of the English physician are borrowed mainly from the "Chirurgia" of the Italian surgeon. Some few surgical chapters of the Compendium appear to be either original or borrowed from some other authority, but their number is not sufficient to disturb the conclusion at which we have already arrived. Now, as Roger's "Chirurgia" was probably committed to writing in the year 1230, when the surgeon was an old man, these facts lead us to the conclusion that Gilbert must have written his Compendium at least after the date mentioned.

[pg 58]

Another criticism of these chapters suggests certain interesting chronological data. It will be

observed that Roger, in the passage quoted above, recommends a dressing of egg-albumen for wounds of the neck, and expresses considerable doubt whether nerves, when totally divided, can be regenerated (*consolidari*), though they may undoubtedly be reunited (*conglutinari*).

Now Roland, in his edition of Roger's "Chirurgia," criticises both of these statements of his master, as follows:

Nota quod quamvis Rogerius dicat quod apponatur albumen ovi, non approbo, quia frigidum est naturaliter, et vena et nervus et arteria frigida sunt naturaliter, et propter frigiditatem utrorumque non potest perfecte fieri consolidatio.

And again:

Nota quod secundum Rogerium nervus omnino incisus non potest consolidari, vel conjungi nec sui. Nos autem dicimus quod potest consolidari et iterum ad motum reddi habilis, cum hac cautela: Cauterizetur utrumque caput nervi incisi peroptime cum ferro candenti, sed cave vulneris lobia cum ferro calido tangantur. Deinde apponantur vermes contusi et pulveres consolidativi, etc.

It will be observed that Gilbert, in spite of the rejection by Roland of the egg-albumen dressing of Roger, still recommends its use in wounds of the neck, and although he professes to have seen many nerves regenerated (*consolidari*) under the simple angle-worm treatment of his master, he still makes no mention of the painful treatment of divided nerves by the actual cautery, so highly praised by Roland. It would seem, therefore, that Gilbert was not familiar with the writings of Roland when his Compendium was written, or he would, doubtless, not have omitted so peculiar a plan of treatment in an injury of such gravity. As Roland's edition of Roger's "Chirurgia" is said to have been written in 1264, the comparison of these passages would seem to indicate that Gilbert must have written the Compendium after 1230 and prior to the year 1264.

[pg 59]

Gilbert's surgical chapters discuss the general treatment of wounds and their complications, and more specifically that of wounds of the head, neck, throat, wounds of nerves, of the oesophagus, scapula, clavicle, of the arm, the stomach, intestines and the spleen; fractures of the clavicle, arm, forearm and ribs; compound fractures; dislocations of the atlas, jaw, shoulder and elbows; fistulae in various localities, and the operations on the tonsils and uvula, on goitre, hernia and stone in the bladder, etc.—certainly a surgical compendium of no despicable comprehensiveness for a physician of his age and country.

In the general treatment of wounds (f. 86 c) Gilbert tells us the surgeon must consider the time, the age of the patient, his temperament (*complexio*) and the locality, and be prepared to temper the hot with the cold and the dry with the moist. Measures for healing, cleansing and consolidation are required in all wounds, and these objects may, not infrequently, be accomplished by a single agent. The general dressing of most wounds is a piece of linen moistened with the white of egg (*pecia panni in albumine ovi infusa*), and, as a rule, the primary dressing should not be changed for two days in summer, and for three days in the winter. In moist wounds *vitreolum* reduces the flesh; in dry wounds it repairs and consolidates. *Flos aeris*, in dry wounds, reduces but does not consolidate, but rather corrodes the tissues. Excessive suppuration is sometimes the result of too stimulating applications, sometimes of those which are too weak. In the former case the wound enlarges, assumes a concave form, is red, hot, hard and painful, and the pus is thin and watery (*subtilis*). If the application is too weak, the pus is thick and viscous, and the other signs mentioned are wanting. In either case the dressings are to be reversed. If any dyscrasia, such as excessive heat, coldness, dryness or moisture appears in the wound and delays its healing, it is to be met by its contrary. If fistula or cancer develops, this complication is to be first cured and then the primary wound. The signs of a hot dyscrasia are heat, burning and pain in the wound; of a cold dyscrasia, lividity of the wound; the moist dyscrasia occasions flabbiness (*mollicies*) and profuse suppuration, and the dry produces dryness and induration.

[pg 60]

Wounds of the head (f. 84 c) occur with or without fracture of the cranium, but always require careful examination and exact diagnosis. The wound is to be carefully explored with the finger, and, if necessary, should be enlarged for this purpose. Large, but simple, wounds of the scalp should be stitched with silk in three or four places, leaving the most dependent angle open for escape of the discharges, and in this opening should be inserted a tent (*tuellus*), to facilitate drainage. The wound is then sprinkled with the *pulvis rubeus* and covered with a plantain or other leaf. On the ninth to the eleventh day, if the wound seems practically healed, the stitches are to be removed and the cure completed with simple dressings.

The signs and symptoms of fracture of the cranium are: Loss of appetite and failure of digestion, insomnia, difficulty in micturition, constipation, a febrile dyscrasia, difficulty in cracking nuts or crusts of bread with the jaws, or severe pain when a string is attached to the teeth and pulled sharply. If the meninges are injured we have further: headache, a slow and irregular but increasing fever, alternating with chills, distortion of the angles of the eyes, redness of the cheeks, mental disturbances, dimness of vision, a weak voice and bleeding from the ears or the nose. In the presence of such symptoms the death of the patient may be expected within at most a hundred days.

If the fracture of the cranium is accompanied by a large scalp wound, any fragments of bone or

other foreign body are to be extracted at once, unless haemorrhage or the weakness of the patient are feared, and then a piece of linen is to be cautiously worked in with a feather between the cranium and the dura mater. In the fracture itself a piece of linen, or better of silk, is inserted, the apparent purpose of this double dressing being to protect the dura mater from the discharges and to solicit their flow to the exterior. A piece of sponge, carefully washed, dried and placed in the wound, Gilbert tells us, absorbs the discharges satisfactorily and prevents their penetration internally. Over the wound is placed a bit of linen moistened with egg-albumen, then a dressing of lint, and the whole is maintained in place by a suitable bandage. Finally the patient is to be laid in bed and maintained in such a position that the wound will be dependent, so as to favor the ready escape of the discharges. This dressing is to be renewed three times a day in summer, and twice in winter. Proud flesh upon the dura mater is to be repressed by the application of a sponge, well-washed and dried, and if it appears upon the surface of the wound after the healing of the fracture, it is to be destroyed by the use of the hermodactyl. When the external wound is healed, the cicatrix is to be dressed with the *apostolicon chirurgicum*, an ointment very valuable for the consolidation of bones, the leveling (*adaequatio?*) of wounds, etc.

[pg 61]

When the wound of the scalp is small, so as to render difficult the determination of the extent of the fracture by exploration with the finger, it should be enlarged by crucial incisions, the flaps loosened from the cranium by a suitable scraper (*rugine*) and folded back out of the way, and any fragments of bone removed by the forceps (*pinceolis*). If, however, haemorrhage prevents the immediate removal of the fragments, this interference may be deferred for a day or two, until the bleeding has stopped or has been checked by suitable remedies. Then, after their removal, the piece of linen described above is to be inserted between the cranium and dura mater. Upon the cranium and over the flaps of the scalp, as well as in their angles, the ordinary dressing of albumen is to be applied, covered by a pledget of lint and a suitable bandage. No ointment, nor anything greasy, should be applied until after the healing of the wound, lest some of it may accidentally run down into the fracture and irritate the dura matter. Some surgeons, Gilbert tells us, insert in the place of the fragments of the cranium removed a piece of a cup (*ciphi*) or bowl (*mazer*), or a plate of gold, but this plan, he says, has been generally abandoned (*dimittitur*).

Sometimes the cranium is simply cracked without any depression of the bone, and such fractures are not easily detected. Gilbert tells us, however, that if the patient will close firmly his mouth and nose and blow hard, the escape of air through the fissured bone will reveal the presence of the fracture (f. 88a). In the treatment of such fissures he directs that the scalp wound be enlarged, the cranium perforated very cautiously with a trepan (*trepano*) at each extremity of the fissure and the two openings then connected by a chisel (*spata?*), in order to enable the surgeon to remove the discharges by a delicate bit of silk or linen introduced with a feather. If a portion of the cranium is depressed so that it cannot be easily raised into position, suitable openings are to be made through the depressed bone in order to facilitate the free escape of the discharges.

Gunshot wounds were, of course, unknown in Gilbert's day. In a chapter entitled "*De craneo perforato*" he gives us, however, the treatment of wounds of the head produced by the transfixion of that member by an arrow. If the arrow passes entirely through the head, and the results are not immediately fatal, he directs the surgeon to enlarge the wound of exit with a trephine, remove the arrowhead through this opening, and withdraw the shaft of the arrow through the wound of entrance. The wounds of the cranium are then to be treated like ordinary fractures of that organ (f. 88c).

[pg 62]

In wounds of the neck involving the jugular vein (*vena organica*), Gilbert directs ligation of both extremities of the wounded vessel, after which the wound is to be dressed (but not packed) with the ordinary dressing of egg-albumen.

Wounds of nerves are treated with a novel dressing of earthworms lightly beaten in a mortar and mixed with warm oil, and he professes to have seen nerves not only healed (*conglutinari*), but even the divided nerve fibres regenerated (*consolidari*) under this treatment. In puncture of a nerve Gilbert surprises us (f. 179d) by the advice to divide completely the wounded nerve, in order to relieve pain and prevent tetanus (*spasmus*).

Goitre, not too vascular in character, is removed by a longitudinal incision over the tumor, after which the gland is to be dragged out, with its entire capsule, by means of a blunt hook. A large goitre in a feeble patient, however, is better left alone, as it is difficult to remove all the intricate roots of the tumor, and if any portion is left it is prone to return. In such cases Gilbert says we shrink from the application of the actual cautery, for fear of injury to the surrounding vessels and nerves. Whatever method of operation is selected, the patient is to be tied to a table and firmly held in position.

Wounds of the trachea and oesophagus, according to Gilbert, are invariably mortal.

In wounds of the thorax the ordinary dressing of albumen is to be applied, but if blood or pus enters the cavity of the thorax, the patient is directed to bend his body over a dish, twisting himself from one side to another (*supra discum¹⁰ flectat se modo hac modo ilac vergendo*) until he expels the sanies through the wound, and to always lie with the wound dependent until it is completely healed (f. 182d).

In case an arrow is lodged within the cavity of the thorax, the surgeon is directed to trepan the sternum (*os pectoris*), remove the head of the arrow gently from the shaft, and withdraw the

shaft itself through the original wound of entrance. If the head is lodged beneath or between the ribs, an opening is to be made into the nearest intercostal space, the ribs forced apart by a suitable wedge and the head thus extracted. The wound through the soft parts is to be kept open by a tent greased with lard and provided with a suitable prolongation (*cauda aliqua*) to facilitate its extraction and prevent its falling into the cavity of the chest.

Wounds of the heart, lungs, liver, stomach and diaphragm are regarded as hopelessly mortal (f. 233d), and the physician is advised to have nothing to do with them. Wounds of the heart are recognized by the profuse haemorrhage and the black color of the blood; those of the lung by the foamy character of the blood and the dyspnoea; wounds of the diaphragm occasion similar dyspnoea and are speedily fatal; those of the liver are known by the disturbance of the hepatic functions, and wounds of the stomach by the escape of its contents. Wounds of the intestine are either incurable, or at least are cured only with the utmost difficulty. Longitudinal wounds of the spine which do not penetrate the cord may be repaired, but transverse wounds involving the cord, so that the latter escapes from the wound, are rarely, if ever, cured by surgery. Wounds of the kidneys are also beyond the art of the surgeon. Wounds of the penis are curable, and if the wound is transverse and divides the nerve, they are likewise painless.

Si vene titillares in coxis abscidantur homo moritur ridendo. A passage which I can refer only to the erudition and risibility of our modern surgeons and anatomists. The ticklish *vene titillares* are to me entirely unknown.

Modern abdominal surgeons will probably be interested in reading Gilbert's chapter on the treatment of wounds of the intestines in the thirteenth century. He says (f. 234c):

If some portion of the intestine has escaped from a wound of the abdomen and is cut either longitudinally or transversely, while the major portion remains uninjured; if the wound has existed for some time and the exposed intestine is cold, some living animal, like a puppy (*catulus*), is to be killed, split longitudinally and placed over the intestine, until the latter is warmed, vivified by the natural heat and softened. Then a small tube of alder is prepared, an inch longer than the wound of the intestine, carefully thinned down (*subtilietur*) and introduced into the gut through the wound and stitched in position with a very fine square-pointed needle, threaded with silk. This tube or canula should be so placed as to readily transmit the contents of the intestine, and yet form no impediment to the stitches of the wound. When this has been done, a sponge moistened in warm water and well washed should be employed to gently cleanse the intestines from all foreign matters, and the gut, thus cleansed, is to be returned to the abdominal cavity through the wound of the abdominal wall. The patient is then to be laid upon a table and gently shaken, in order that the intestines may resume their normal position in the abdomen. If necessary the primary wound should be enlarged for this purpose. When the intestines have been thus replaced, the wound in the abdominal wall is to be kept open until the wound of the intestine seems healed. Over the intestinal suture a little *pulvis ruber* should be sprinkled every day, and when the wound of the intestine is entirely healed (*consolidatur*), the wound of the abdominal wall is to be sewed up and treated in the manner of ordinary flesh wounds.

If, however, the wound is large, a pledget (*pecia*) of lint, long enough to extend from one end to the other and project a little, is placed in the wound, and over this the exterior portion of the wound is to be carefully sewed, and sprinkled daily with the *pulvis ruber*. Every day the pledget which remains in the wound is to be drawn towards the most dependent part, so that the dressing in the wound may be daily renewed. When the intestinal wound is found to be healed, the entire pledget is to be removed and the unhealed openings dressed as in other simple wounds. The diet of the patient should be also of the most digestible sort.

Thus far Gilbert has followed Roger almost literally. But he now adds, apparently upon his own responsibility, the following paragraph:

Quod si placuerit, extrahe canellum: factis punctis in sutura ubi debent fieri antequam stringantur, inter duo puncta canellus extrahatur, et post puncta stringantur. Hoc dico si vulnus intestini sic (sit) ex transverso.

Apparently Gilbert feels some compunctions of conscience relative to the ultimate disposition of the canula of alder-wood, and permits, if he does not advise, its removal from the intestine before the tightening of the last stitches.

Roland adds nothing to the text of Roger. But The Four Masters (*Quatuor Magistri*, about A.D. 1270) suggest that the canula be made of the trachea of some animal, and add:

Canellus autem per processum temporis putrefit et emittur per egestionem, et iterum per concavitatem canelli transibit egestio.

In his further discussion of wounds of the intestine and their treatment Gilbert also volunteers the information that:

"Mummy (shade of Lord Lister!) is very valuable in the healing of wounds of the intestine, if applied with some astringent powder upon the suture."

In amends for the mummy, however, we are also introduced to the practice of mediaeval anaesthesia by means of what Gilbert calls the *Confectio soporifera* (f. 234d), composed as

follows:

R.

Opii,
Succi Jusquiami (hyoscyami),
Succi papaveris nigri, vel ejus seminis,
Sacci mandragorae, vel ejus corticis, vel pomorunt ipsius si succo carueris,
Foliorum hederæ arboræ (ivy),
Succi mororum rubi maturorum,
Seminis lactucae,
Succi cuseutæ (dodder), aa. ounce I.

Mix together in a brazen vessel and place this in the sun during the dog-days. Put in a sponge to absorb the mixture, and then place the sponge in the sun until all the moisture has evaporated. When an operation is necessary, let the patient hold the sponge over his nose and mouth until he goes to sleep, when the operation may be begun. To awaken the patient after the operation, fill another sponge with vinegar and rub the teeth and nostrils with the sponge, and put some vinegar in the nostrils. An anaesthetic drink may also be prepared as follows:

R.

Seminis papaveris albi et nigri,
Seminis lactucae, aa. ounce I.
Opii,
Misconis (, poppy juice?), aa. scruples I-II, as required.

The patient is to be aroused as before.

[pg 66]

On folio 180d we find a chapter entitled "*De cathena gulæ incisa vel fracta,*" and copied almost literally from the chapter "*De catena gulæ*" of Roger. In neither writer do I find any precise definition of what the *cathena gulæ* is, though Roger says, *Si es gulæ, quod est catena, fractum fuerit,* etc., nor do I find the terms used explained in any dictionary at present available. The description of the treatment of this fracture seems, however, to indicate that the *catena gulæ* of Roger and Gilbert is what we call the clavicle, though the more common Latin names of this bone are *claviculus, furcula, juglum* or *os juguli*. Gilbert says: "But if the bone which is the *cathena gulæ* is broken or in any way displaced (*recesserit*), let the physician with one hand raise the forearm (*brachium*) or arm (*humerum*) of the patient, and with the other hand press down upon the projecting portion of the bone. Then apply a pledget moistened with albumen, a pad and a splint in form of a cross, and over all a long bandage embracing both the arm and the neck and suspending the arm. A pad (*cervical*) should also be placed in the axilla to prevent the dropping of the arm, and should not be removed until the fracture is repaired. If the fracture is compound, the wound of the soft parts is to be left open and uncovered by the bandage, so that a tent (*stuellus*) may be inserted, and the wound is then to be dressed in the ordinary manner."

Simple fracture of the humerus, Gilbert tells us, is to be reduced (*ad proprium locum reductor*) at once by grasping the arm above and below the seat of fracture and exercising gentle and gradual extension and compression. Then four pieces of lint wet in egg-albumen are to be placed around the arm on all sides, a bandage, four fingers wide, also moistened in albumen is to be snugly applied, another dry bandage placed above this, and finally splints fastened in position by cords. This dressing is to remain undisturbed for three days, and then renewed every third day for nine days. After the ninth day a *strictura* (cast, apparatus immobile?) is to be prepared and firmly applied with splints and a bandage, and the patient is to be cautioned not to bear any weight upon the injured arm (*ne infirmus se super illud appodiet?*). The fracture is then left until it is believed that consolidation has occurred. If, however, it is found that swelling is occasioned by the cast (*ex strictorio?*), the latter should be removed, and the arm well bathed in warm water containing mallowæ and other emollients and thoroughly cleansed. If the bone seems to be well consolidated, it should be rubbed with an ointment of *dialthea* or the *unguentum marciation*, after which the splints and bandage are to be reapplied. If, however, it is found that the bone is not well consolidated, the cast should be replaced in the original manner, until consolidation is accomplished. If erysipelas results from the dressings, it is to be treated in the ordinary manner. During the entire treatment potions of nasturtium seeds, *pes columbini* (crowfoot) and other "consolidatives" are to be administered diligently. If the fracture is compound, any loose fragments of bone are to be removed, the fracture reduced as before, and similar dressings applied, perforated, however, over the wound in the soft parts.

[pg 67]

In fracture of the ribs (*flexura costæ*) Gilbert recommends a somewhat novel plan for the replacement of the displaced bone. Having put the patient in a bath, the physician rubs his hands well with honey, turpentine, pitch or bird-lime (*visco*), applies his sticky palms over the displaced ribs, and gradually raises them to their normal position. He also says (f. 183a), the application of a dry cup (*cuffa vero cum igne?*) over the displaced rib is a convenient method for raising it into position.

Of fractures of the forearm Gilbert simply says that they are to be recognized by the touch and a comparison of the injured with the sound arm. They should be diligently fomented, extension made if necessary, and then treated like other fractures.

Dislocation of the atlo-axoid articulation (*os juguli*) he tells us threatens speedy death. The mouth of the patient is to be kept open by a wooden gag, a bandage passed beneath the jaw and held by the physician, who places his feet upon the shoulders of the patient and pressing down upon them while he elevates the head by the bandage, endeavors to restore the displaced bone to its normal position. Inunctions of various mollitives are then useful.

Dislocations of the lower jaw are recognized by the failure of the teeth to fit their fellows of the upper jaw, and by the detection of the condyles of the jaw beneath the ears. The bone is to be grasped by the rami and dragged down until the teeth resume and retain their natural position, and the jaw is then to be kept in place by a suitable bandage.

In dislocation of the humerus the patient is to be bound in the supine position, a wedge-shaped stone wrapped with yarn placed in the axilla, and the surgeon, pressing against the padded stone with his foot and raising the humerus with his hands, reduces the head of the bone to its natural position. If this method fails, a long crutch-like stick is prepared to receive at one end the axillary pad, the patient is placed standing upon a box or bench, the pad and crutch adjusted in the axilla, and while the surgeon stands ready to guide the dislocated bone to its place, his assistants remove the bench, leaving the patient suspended by his shoulder upon the rude crutch. In boys, Gilbert tells us, no special apparatus is required. The surgeon merely places his doubled fist in the axilla, with the other hand grasps the humerus and lifts the boy off the ground, and the head of the bone slips readily back into place. After we are assured that the reduction is complete, a strictorium is prepared, consisting of the *pulvis ruber*, egg-albumen and a little wheat flour, with which the shoulder is to be rubbed. Finally, when all seems to be going on well, warm *spata drapum* (sparadrap) is to be applied upon a bandage, and if necessary the apostolicon ointment.

Dislocation of the elbow is reduced by passing a bandage around the bend of the arm, forming in this a loop (*scapham*) into which the foot of the surgeon is to be placed for counter-extension, while with the hands extension is to be made upon the forearm until the bones are drawn into their normal position. Flexion and extension of the joint are then to be practised three or four times (to assure complete reduction?), and the forearm flexed and supported by a bandage from the neck. After a few days, Gilbert tells us, the patient will himself often try to flex and extend the arm, and the bandage should be so applied as not to interfere with these movements.

Dislocation of the wrist is reduced by gentle extension from the hand and counter-extension from the forearm, and dislocation of the fingers by a similar manipulation.

After so full a consideration of the surgical injuries of the head, trunk and upper extremities, we are somewhat surprised to find Gilbert's discussion of the similar injuries of the lower extremities condensed into a single very moderate chapter entitled "De vulneribus cruris et tybie" (f. 358a b).

In this, Gilbert, emphasizing the importance of wounds of the patella and knee-joint and the necessity for their careful treatment, also declares that wounds of both the leg and thigh within three inches of the joints, or in the fleshy portion of the thigh *ubi organum est* (?), involve considerable danger. He then speaks of a blackish, hard and very painful tumor of the thigh, which, when it ascends the thigh (*ad superiora ascendit*) is mortal, but if it descends is less dangerous. Separation of the sacrum (*vertebrum*) from the ilium (*scia*), either by accident or from the corrosion of humors, leaves the patient permanently lame, though suitable fomentations and inunctions may produce some improvement. Sprains of the ankle are to be treated by placing the joint immediately in very cold water *ad repercussionem spiritus et sanguinis*, and the joint is to be kept thus refrigerated until it even becomes numb (*stupefactionem*); after which stupes of salt water and urine are to be applied, followed by a plaster of galbanum, opoponax, the apostolicon, etc.

Fractures of the femur are to be treated like those of the humerus, except that the ends of the fractured bone are to be separated by the space of an inch, and a bandage six fingers in width carefully applied. Such fractures within three inches of the hip or knee-joint are regarded as specially dangerous.

Dislocations of the ankle, after reduction of proper manipulation, should be bound with suitable splints. If of a less severe character, the dislocation may be dressed with stupes of canabina (Indian hemp), urine and salt water, which greatly mitigate the pain and swelling. Afterwards the joint should be strapped for four or five inches above the ankle with plaster, *ut prohibeatur fluxus*.

It should be said that the brevity of this chapter of Gilbert is modeled after the manner of Roger of Parma, who refers the treatment of injuries of the lower extremities very largely to that of similar injuries of the upper, merely adding thereto such explanations as may be demanded by the differences of location and function of the members involved. Thus in his discussion of dislocation of the femur Roger says:

Si crus a coxa sit disjunctum, eadem sit cura quam et in disjuncturam brachii et cubiti diximus, etc.

The general subject of fistulae is treated at considerable length on folio 205b, and fistula lachrymalis and fistulae of the jaw receive special attention in their appropriate places. As a rule, the fistula is dilated by a tent of alder-pith, mandragora, briony or gentian, the lining membrane

destroyed by an ointment of quick-lime or even the actual cautery, and the wound then dressed with egg-albumen followed by the *unguentum viride*. Necrosed bone is to be removed, if necessary, by deep incisions, and decayed teeth are to be extracted.

The elongated uvula is to be snipped off, and abscesses of the tonsils opened *tout comme chez nous*.

[pg 70]

An elaborate discussion of the subject of hernia is given under the title "*De relaxatione siphac et ruptura*" (f. 280c)—siphac being the Arabian name for the peritoneum. Gilbert tells us the siphac is sometimes relaxed, sometimes ruptured (*crepatur?*) and sometimes inflated. He had seen a large rupture (*crepatura*) in which it was impossible to restore the intestines to the cavity of the abdomen in consequence of the presence in them of large hard masses of fecal matter, which no treatment proved adequate to remove, and which finally occasioned the death of the patient. Rupture of the siphac is most frequently the result of accident, jumping, straining in lifting or carrying heavy weights, or in efforts at defecation, or of shouting in boys or persons of advanced age, or even in excessive weeping, etc. It is distinguished from hernia by the fact that in hernia pain is felt in the testicle, radiating to the kidneys, while in rupture of the siphac a swelling on one side of the pubes extends into the scrotum, where it produces a tumor not involving the testicle. Rupture of the siphac, he says, is a lesion of the organs of nutrition, hernia a disease of the organs of generation. Accordingly, in the pathology of Gilbert, the term hernia is applied to hydrocele, orchitis and other diseases of the testicle, and not, as with us to protrusions of the viscera through the walls of their cavities.

In young persons, he tells us, recent ruptures of the siphac may be cured by appropriate treatment. The patient is to be laid upon his back, the hips raised, the intestines restored to the abdominal cavity and the opening of exit dressed with a plaster of exsiccative and consolidating remedies, of which he furnishes a long and diversified catalogue. He is also to avoid religiously all exercise or motion, all anger, clamor, coughing, sneezing, equitation, cohabitation, etc., and to lie with his feet elevated for forty days, until the rupture (*crepatura*) is consolidated. The bowels are to be kept soluble by enemata or appropriate medicines, and the diet should be selected so as to avoid constipation and flatulence. A bandage or truss (*bracale vel colligar*) made of silk and well fitted to the patient is also highly recommended. If the patient is a boy, cakes (*crispelle?*) of *consolida major* mixed with the yolk of eggs should be administered, one each day for nine days before the wane of the moon. If, however, the rupture is large in either a boy or an adult, and of long standing, whether the intestine descends into the scrotum or not, operation, either by incision or by the cautery offers the only hope of relief. Singularly enough too, while Roger devotes to the operation for the cure of hernia nearly half a page of his text, Gilbert dismisses the whole subject in a single sentence, as follows:

[pg 71]

Scindatur igitur totus exitus super hac cute exteriori cum carne fissa, et uatur y fac cum file serice et acu quadrata. Deinde persequere ut in exitu intestini per vulnus superius demonstratum est (f. 281d).

Turning now to the title "*De hernia*" (f. 289b), Gilbert tells us "Swelling (*inflatio*) of the testicles is due sometimes to humors trickling down upon them (*rheumatizantibus*), sometimes to abscess, or to gaseous collections (*ventositate*), and sometimes to escape of the intestines through rupture of the siphac." He adds also: "Some doubt the propriety of using the term hernia for an inflation. On this point magister Rn says: There is a certain chronic and inveterate tumor of the testicles, which is never cured except by means of surgery, as e.g., hernia. For hernia is an affection common to the scrotum and the testicles."

The apparent confusion between these two passages is easily relieved by the explanation that inguinal or other herniae not extending into the scrotum are called by Gilbert ruptures of the siphac, but scrotal hernia is classed with other troubles located in the scrotum as hernia. Accordingly hernia, with Gilbert, includes not only scrotal hernia, but also hydrocele, orchitis, tumors of the testicles, etc. This is apparent, too, in his treatment of hernia, which consists usually in the employment of various poultices and ointments, bleeding from the saphena, cups over the kidneys, etc., though hydrocele is tapped and a seton inserted. If the testicle itself is "putrid," it should be removed; otherwise it is left. It may be remarked *en passant* that the surgeons of mediæval times, in their desire for thoroughness, often displayed very little respect to what Baas calls "the root of humanity."

We will terminate our hasty review of diseases discussed in the Compendium by an abstract of Gilbert's views on vesical calculus and its treatment, which cover more than fifteen pages of his work.

Stone and gravel arise from various viscous superfluities in the kidneys and bladder, which occasion difficulty in micturition. Stone is produced by the action of heat upon viscous moisture, sublimating the volatile elements and condensing the denser portions. Putrefication of stone in the bladder is the result of three causes, viz., consuming heat, viscous matter and stricture of the meatus. For consuming heat acting on viscous material retained by reason of stricture of the meatus, by long action dries up, coagulates and hardens the moisture. This is particularly manifest in boys who have a constricted meatus.

[pg 72]

Stones are thus generated not only in the kidneys and bladder, but also even in the stomach and the intestines, whence they are ejected by vomiting or in the stools. Indeed they may also be

found occasionally in the lungs, the joints and other places. They are comparatively rare in women, in consequence of the shortness of the urethra and the size of their meatus.

Sometimes calculi occur in the bladder, sometimes in one kidney and occasionally in both kidneys. The symptoms produced by their presence vary in accordance with the situation of the concretion. If the stone is in the kidney, the foot of the side affected is numb (*stupidus*), the spine on the affected side is sore and there is difficulty of micturition and considerable gravelly sediment in the urine. If the stone is increasing in size, the quantity of sediment also increases, but if the stone is fully formed and confirmed, the amount of sediment decreases daily, and the urine becomes milky both in the kidneys and the bladder. A stone in the bladder occasions very similar symptoms, together with pain in the peritoneum and pubes, dysuria and strangury, and sometimes the appearance of blood and flocculi (*trumbos?*) in the urine. Patients suffering from vesical calculus are always constipated, and the dysuria may increase to the degree called furia, a condition not without some danger.

Three things are necessary in the cure of stone, viz., a spare and simple diet, the use of diuretics and a moderate amount of exercise. It should, however, be remarked that confirmed stone is rarely or never cured, except by a surgical operation.... If a boy has a clear and watery urine after it has been sandy, if he frequently scratches his foot, has involuntary erections and finally obstruction in micturition, I say that he has a stone in the neck of his bladder. If now he be laid upon his back with his feet well elevated, and his whole body be well shaken, if there is a stone present it is possible that it may fall to the fundus of the bladder. Afterwards direct the boy to bear down (*ut exprimat se*) and try to make water. If this treatment turns out in accordance with your theory, the urine necessarily escapes and your idea and treatment are confirmed. If, however, the urine not escape, let the boy be shaken vigorously a second time. If this too fails and strangury ensues, it will be necessary to resort to the use of a sound or catheter (*argaliam*), so that when the stone is pushed away from the neck of the bladder the passage may be opened and the urine may flow out. It may be possible too that no stone exists, but the urethra is obstructed or closed by pure coagulated blood. Perhaps there may have been a wound of the bladder, although no external haemorrhage has appeared, but the blood coagulating gradually in the bladder has occasioned an obstruction or narrowing of the urinary passage. Or possibly the blood from a renal haemorrhage has descended into the bladder and obstructs the urethra. Hence I say that the sound is useful in these cases where the urethra is obstructed by blood or gross humors. Examination should also be made as to whether a fleshy body exists in the bladder, as the result of some wound. This condition is manifest if, on the introduction of the sound, the urine flows out promptly. I once saw a man suffering from this condition, who complained of severe pain in the urinary passage as I was introducing the sound, and I recognized that there were wounds in the same part, for as soon as these were touched by the sound the urine began to flow, followed soon after by a little blood and fleshy particles.... So far as the operation of physicians is concerned, it is necessary only to be certain of the fact that obstruction to the passage of urine depends upon no other cause than stone or the presence of coagulated blood (f. 271).

[pg 73]

Gilbert's medical treatment of vesical calculus consists generally in the administration of diuretics and lithontriptics and the local application of poultices, plasters and inunctions of various kinds. Of the lithontriptics, certain combinations, characterized by famous names or notable historical origin, are evident favorites. Among this class we read of the *Philoantropos major* and *minor*, the *Justinum*, the *Usina* "approved by many wise men of Babylon and Constantinople," the *Lithontripon* and the "*Pulvis Eugenii pape*," with numerous others.

Rather curiously and suggestively no mention is made in this immediate connection of the technique of lithotomy. On a later page, however (f. 309a), we find a chapter entitled "*De cura lapidis per cyrurgiam*," in which Gilbert writes:

"Mark here a chapter on the cure of stone in the bladder by means of surgery, which we have omitted above. Accordingly, to determine whether a stone exists in the bladder, let the patient take a warm bath. Then let him be placed with his buttocks elevated, and, having inserted into the anus two fingers of the right hand, press the fist of the left hand deeply above the pubes and lift and draw the entire bladder upward. If you find anything hard and heavy, it is manifest that there is a stone in the bladder. If the body feels soft and fleshy, it is a fleshy excrescence (*carositas*), which impedes the flow of urine. Now, if the stone is located in the neck of the bladder and you wish to force it to the fundus: after the use of fomentations and inunctions, inject through a syringe (*siringa*) some petroleum, and after a short interval pass the syringe again up to the neck of the bladder and cautiously and gently push the stone away from the neck to the fundus. Or, which is safer and better, having used the preceding fomentations and inunctions, and having assured yourself that there is a stone in the bladder, introduce your fingers into the anus and compress the neck of the bladder with the fist of the left hand above the pubes, and cautiously remove the stone and guide it to the fundus. But if you wish to extract the stone, let a spare diet precede the operation, and let the patient lie abed for a couple of days with very little food. On the third day introduce the fingers into the anus as before, and draw down the stone into the neck of the bladder. Then make your incision lengthwise in the fontanel, the width of two fingers above the anus, and extract the stone. For nine days after the operation let the patient use, morning and evening, fomentations of *branca* (*acanthus mollis*), *paritaria* (pellitery) and *malva* (mallows). A bit of tow (*stupa*) moistened with the yolk of egg in winter, and with both the yolk and white of egg in summer, is to be placed over the wound. Proud flesh, which often

[pg 74]

springs up near a wound in the neck of the bladder, should be removed by the knife (*rasorio*), and two or three sutures inserted. The wound is then to be treated like other wounds. It should be remarked, however, that if the stone is very large, it should be simply pushed up to the fundus of the bladder and left there, and no effort should be made to extract it."

This description of the diagnosis of stone and of the operation of lithotomy is copied almost literally from Roger of Parma.

Sufficient (perhaps more than enough) has been written to give the reader a fair idea of the general character of Gilbert's "Compendium Medicine."

A few words may be added with reference to the proper place of the work in our medical literature.

[pg 75]

It is not difficult, of course, to select from the Compendium a charm or two, a few impossible etymologies and a few silly statements, to display these with a witty emphasis and to draw therefrom the easy conclusion that the book is a mass of crass superstition and absurd nonsense. This, however, is not criticism. It is mere caricature.

To compare the work with the teachings of modern medicine is not only to expect of the writer a miraculous prescience, but to minimize the advances of medical science within the last seven hundred years.

Even Freind and Sprengel, admirable historians, though more thoughtful and judicious in their criticisms, seem for the moment to have forgotten or overlooked the true character of the Compendium.

Freind says:

"I believe we may even say with justice that he (Gilbert) has written as well as any of his contemporaries of other nations, and has merely followed their example in borrowing very largely from the Arabians," and Sprengel writes: "Here and there, though only very rarely, the author offers some remarks of his own, which merit special attention."

Now, what precisely is Gilbert's Compendium designed to be? In the words of its author it is

"A book of general and special diseases, selected and extracted from the writings of all authors and the practice of the professors (*magistorum*), edited by Gilbert of England and entitled a Compendium of Medicine."

and a few pages later he adds:

"It is our habit to select the best sayings of the best authorities, and where any doubt exists, to insert the different opinions, so that each reader may choose for himself what he prefers to maintain."

The author does not claim for his work any considerable originality, but presents it as a compendium proper of the teachings of other writers. Naturally his own part in the book is not obtruded upon our notice.

Now the desiderata of such a compendium are:

1. That it shall be based upon the best attainable authorities.
2. That these authorities shall be accurately represented.
3. That the compendium shall be reasonably comprehensive.

[pg 76]

In neither of these respects is the compendium of Gilbert liable, I think, to adverse criticism.

The book is, undoubtedly, the work of a famous and strictly orthodox physician, possessed of exceptional education in the science of his day, a man of wide reading, broadened by extensive travel and endowed with the knowledge acquired by a long experience, honest, truthful and simple minded, yet not uncritical in regard to novelties, firm in his own opinions but not arrogant, sympathetic, possessed of a high sense of professional honor, a firm believer in authority and therefore credulous, superstitious after the manner of his age, yet harboring, too, a germ of that healthy skepticism which Roger Bacon, his great contemporary, developed and illustrated.

I believe, therefore, that we may justly award to the medical pages of the Compendium not only the rather negative praise of being written as well as the work of any of Gilbert's contemporaries, but the more positive credit of being thoroughly abreast of the medical science of its age and country, an "Abstract and brief chronicle of the time."

The surgical chapters of the work are unique in a compendium of medicine, and merit even more favorable criticism.

The discouragement of the practice of medicine and surgery on the part of ecclesiastics by the popes and church councils of the twelfth century, culminating in the decree of Pope Innocent III

in 1215, which forbade the participation of the higher clergy in any operation involving the shedding of blood (*Ecclesia abhorret a sanguine*); the relatively scanty supply of educated lay physicians and surgeons, and finally the pride and inertia of the lay physicians themselves; all these combined to relegate surgery in the thirteenth century to the hands of a class of ignorant and unconscionable empirics, whose rash activity shed a baleful light upon the art of surgery itself. As a natural result the practice of this art drifted into an *impasse*, from which the organization of the barber-surgeons seemed the only logical means of escape.

The earliest evidence of the public surgical activity of the barbers, as a class, is found, I believe, in Joinville's Chronicle of the Crusade of St. Louis (Louis IX) in the year 1250. According to Malgaigne, no trustworthy evidence of any organization of the barbers of Paris is available before 1301, and the fraternity was not chartered until 1427, under Charles VII. The barbers of London are noticed in 1308, and they received their charter from Edward IV in 1462. The parallel lines upon which the confraternities of the two cities developed is very noticeable—making due allowance for Gallic enthusiasm and bitterness.

[pg 77]

Lanfranchi, the great surgeon of Paris, about the year 1300 is moved to write as follows:

"Why, in God's name, in our days is there such a great difference between the physician and the surgeon? The physicians have abandoned operative procedures to the laity, either, as some say, because they disdain to operate with their hands, or rather, as I think, because they do not know how to perform operations. Indeed, this abuse is so inveterate that the common people look upon it as impossible for the same person to understand both surgery and medicine. It ought, however, to be understood that no one can be a good physician who has no idea of surgical operations, and that a surgeon is nothing if ignorant of medicine. In a word, one must be familiar with both departments of medicine."

Now Gilbert by the incorporation of many chapters on surgery in his Compendium inculcates practically the same idea more than fifty years before Lanfranchi, and may claim to be the earliest representative of surgical teaching in England. Malgaigne, indeed, does not include his name in the admirable sketch of medieval surgery with which he introduces his edition of the works of Ambroise Pare, and says Gilbert was no more a surgeon than Bernard Gordon. This is in a certain sense true. Gilbert was certainly not an operative surgeon. But it needs only a very superficial comparison of the Compendium of Gilbert with the *Lilium Medicinae* of Gordon to establish the fact that the books are entirely unlike. Indeed, it may be truthfully said that Gordon's work does not contain a single chapter on surgery proper. His cases involving surgical assistance are turned over at once, and with little or no discussion, to those whom he calls "restauratores" or "chirurgi," and his own responsibility thereupon ends.

We have no historical facts which demonstrate that Gilbert's Compendium exercised any considerable influence upon the development of surgery in England, but when we consider the depressed condition of both medicine and surgery in his day, we should certainly emphasize the clearness of vision which led our author to indicate the natural association of these two departments of the healing art, and the assistance which each lends to the other.

Footnote 1: [\(return\)](#)

In Leslie Stephen's "Dictionary of Biography."

Footnote 2: [\(return\)](#)

British Medical Journal, Nov. 12, 1904, p. 1282.

Footnote 3: [\(return\)](#)

Janus, 1903, p. 20.

Footnote 4: [\(return\)](#)

Cap. XXXVI, p. 116, edition of Brewer.

Footnote 5: [\(return\)](#)

Haeser says that this MS. of Roger's "Chirurgia," made by Guido Arenitensium, was discovered by Puccinoti in the Magliabechian library, and that an old Italian translation of the same work is also found there. The latter was the work of a certain Bartollomeo.

The text used to represent Roger in the present paper is that published by De Renzi (*Collectio Salernitana*, tom. II, pp. 426-493) and entitled "Rogerii, Medici Celeberrimi Chirurgia." It is really the text published originally in the "*Collectio Chirurgica Veneta*" of 1546, of which the preface says:

"*His accenserunt Rogerii ac Guil. Saliceti chirurgiae, quarum prior quibusdam decorata adnotationibus nunc primum in lucem exit, etc.,*" and adds further on:

"*Addimus etiam quasdam in Rogerium veluti explanationes, in antiquissimo codice inventas, et ab ipso fortasse Rolando factas.*" While I may recognize gratefully the surgical enthusiasm which led the editor to the publication of these "*veluti explanationes*," for my present purpose he would have earned more grateful recognition if he had left them unprinted. As the text now stands it is merely a garbled edition of the *Rolandina*. However, it is the best representative of the "Chirurgia" of Roger at present

available. See De Renzi, op. cit., p. 425.

Footnote 6: [\(return\)](#)

This apparent anachronism carries us back to the history of the mythical Island of Brazil, which appeared upon our charts as late as the middle of the 19th century.

Footnote 7: [\(return\)](#)

In his chapter on embryology (f. 304c) Gilbert describes the Irili vein as follows: "The embryo is nourished by means of the Irili or Irineli vein, which does not exist in man. This vein has its origin in the liver and divides into two branches. Of these the superior branch bifurcates, and one of its branches goes to the right breast, the other to the left, conveying blood from the liver. This blood in the breast is bleached white (*dealbatur*) like milk, and forms the nourishment of the infant. The inferior branch of the Irili vein also bifurcates, sending one of its branches to the right cornu of the uterus, the other to the left. These vessels carry blood into the cotyledons, whence it is transmitted to the fetus and digested by its digestive faculty."

Footnote 8: [\(return\)](#)

Cf. the French *bosse de la gorge*.

Footnote 9: [\(return\)](#)

It is at least interesting to know that small-pox is said to have made its first appearance in England in 1241.

Footnote 10: [\(return\)](#)

It is interesting to observe how the Latin *discus* developed dichotomously into the English "dish" and the German "Tisch." The former is doubtless the meaning of the word in this place.

*** END OF THE PROJECT GUTENBERG EBOOK GILBERTUS ANGLICUS: MEDICINE OF THE THIRTEENTH CENTURY ***

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