

## CHAPTER III

# Golden Age of Individual Bibliographers

WITH the advent of the eighteenth century, many of the problems that beset modern medical bibliography came into prominence. An attempt will be made in this chapter to show through the examples of the work of the greatest medical bibliographers of their age, Albrecht von Haller and Wilhelm Gottfried Ploucquet, that methods were devised for the solution of these problems which were essentially the methods of modern medical bibliography.

Perhaps the greatest of the problems confronting medical bibliographers in the eighteenth century was that of coping with the enormous growth of medical literature. This growth is attested on all sides.<sup>1</sup> The "endless flood of the medical literature," about which Ploucquet com-

<sup>1</sup> See, for example, W. G. Ploucquet's *Literatura medica digesta . . .* Tübingen, Cotta, 1808, v. 1: [iii]: "Cum autem flumen perenne Literaturae Medicae urgeret, factum est, ut ad finem anni 1806 iterum insignis copia noviter inserendorum, numerum 40,000 circiter aequans . . .," or the words of Römer and Usteri, who comment that even with the best intentions in the world, physicians cannot get through all the new medical literature—or even the classic works. J. J. Römer and P. Usteri. *Des Herren von Haller's Tagebuch der medizinischen Literatur der Jahre 1745 bis 1774 . . .* Bern, Haller, 1789, v. 1: vi-vii.



D. WILH. GOTTER. PLOUCQUET,  
*Professor der Arzneykunde  
in Tübingen.*

H. Lins sculp.



plains, was probably due not to a single cause, but to several causes working simultaneously. Perhaps one of the most important of these was the change in medical education occurring at the time: this change fostered a demand for a new literature, which the recently founded scientific periodical was able to fill.

Medical education in the seventeenth and eighteenth centuries underwent some fundamental changes. Before this time the didactic lecture from an approved text with some commentaries by the professor had been, for the most part, the established method of educating physicians,<sup>2</sup> as shown in many illustrations of the time.<sup>3</sup>

By the end of the eighteenth century, many of the more important medical schools had replaced these theoretical lectures with clinical and laboratory teaching, and

<sup>2</sup> "Medical teaching consisted chiefly of theoretical discourses. The medical writings of the ancients and their Arabian and Italian commentators formed the foundation of these. The teacher added technical explanations and remarks on his own practice to the reading of these books." Theodor Puschmann. *A History of Medical Education from the Most Remote to the Most Recent Times*. London, Lewis, 1891, p. 239. See also p. 396.

<sup>3</sup> For example, Johannes de Ketham's *Fasciculus medicinae*, *op. cit.*, or Mundinus, *op. cit.*, which show the professor on a raised dais expounding to the students below from an open book before him. In the case of Ketham, the books to be expounded are labelled by the artist and include the classic writers, Galen, Hippocrates, Avicenna, Rhazes, and others. Other such representations can be found reproduced in Ludwig Geiger's *Renaissance und Humanismus in Italien und Deutschland*. Berlin, Grote, 1882.

had enlarged the number of their faculty to such an extent that each professor taught only one subject.<sup>4</sup>

Perhaps nowhere on the Continent was this change more apparent than at the University of Leiden. Here under the aegis of Boerhaave, a new emphasis was given to medical studies with a return to the Hippocratic principle of observing the patient and of fitting theory to observed fact, rather than fact to preconceived theory. This led to far-reaching results.<sup>5</sup> As far back as 1637 the University of Leiden had attempted to present its medical students with some practical training.<sup>6</sup>

<sup>4</sup> "Instead of two or three professors whose teaching was limited to a few theoretical lectures and only occasionally concerned itself with practical training in anatomy, materia medica and the healing art proper, now, at least at the greater universities, boards of teachers were formed, the members of which represented the various branches of medicine and had anatomical schools, laboratories and clinical establishments at their disposal." Puschmann. *Op. cit.*, p. 433.

<sup>5</sup> How different this spirit was from the medieval medical school (excluding Salerno) can perhaps best be illustrated by comparing it with the statements of Arnold of Villanova in his commentary on the first aphorism of Hippocrates. (*Opera omnia*. Lyons, 1504, f. 336 recto and f. 337) Even when experience seems to contradict the writings of authorities, Arnold points out, we are not at liberty to condemn them; they may be talking of things which have changed since their time, for surely such great masters could not be entirely wrong. This rather common-sense view was sometimes carried to extremes, as, for example, in the case of Sylvius who (according to a perhaps apocryphal story) is said to have replied to a demonstration of errors in Galenic anatomy that man must have changed since Galen's time.

<sup>6</sup> Suringer, G. C. B. *Stichting der School voor klinisch Onderwijs te Leiden onder Heurnius en Screvelius in het Jaar 1637*. . . *Nederl. tijdschr. geneesk.*, 6:515-552, 1862.

Unfortunately this attempt lasted only a few years, and had to be re-introduced by Boerhaave in the eighteenth century.<sup>7</sup>

### HERMANN BOERHAAVE

(1668-1738)

Hermann Boerhaave, the moving spirit of this reform in medical education, was born in Voorhout, near Leiden, in 1668. He studied medicine at the University of Leiden, where he was chosen professor of theoretical medicine at the age of 33. His inaugural address on this occasion, *De commendando studio Hippocratico*, was a statement of

<sup>7</sup>“Waar het in dit verband op aan komt, is dat sedert 1636 twee hoogleeraren der Leidsche faculteit de opdracht hadden in het Caeciliagasthuis, waarin tot dat doel door de Universiteit 12 bedden gereserveerd waren, meermalen per week lessen aan het ziekbed te geven. Tot hulp dezer hoogleeraren werden bovendien twee stadsdoctoren en een chirurgijn aangewezen, terwijl bovendien in genoemd gasthuis een afzonderlijk vertrek voor het verrichten der lijkopeningen was gereserveerd. . . De studenten kregen zoodoende gelegenheid regelmatig patiënten te zien, deze zelf te onderzoeken en het beloop der ziekten te volgen. De hoogleeraren vonden in het onderwijs aan het ziekbed aanleiding meer methodisch over de ziekten en haar behandeling na te denken, terwijl in de combinatie van clinische waarneming en lijkopening de zoo noodzakelijke contrôle op de gevormde voorstellingen gewaarborgd was. . .” J. A. J. Barge. *Het geneeskundig Onderwijs aan de Leidsche Universiteit in de 18e Eeuw*. *Nederl. tijdschr. geneesk.* 78:53, 1934. The twelve beds set aside for the teaching of medical students at the Cecilia Hospital represented a fairly high ratio of patients to students. A description of clinical “rounds” is given by John Ray in his: *Observations Topographical, Moral, and Physiological; Made in a Journey through Part of the Low-Countries*. . . London, Martyn, 1672.

his principles in the field of medical practice. In this discourse Boerhaave emphasized the need for following the principles of Hippocrates in the observation and treatment of patients, a point he stressed throughout his subsequent career. The aim of medicine, he contended, was to cure the patient. Like a number of scientists from Renaissance times on, Boerhaave felt that only from observation could one reach theoretical considerations and hypotheses. In those cases where there is an equal possibility of several explanations for observed facts, then the simplest explanation should be chosen. ("Simplex sigillum veri.")

In order to bring the medical student into contact with the patient, Boerhaave re-introduced the medical "rounds" first conducted by Sylvius in 1663,<sup>8</sup> during which a student would examine a patient, make a tentative diagnosis, and prescribe treatment, stating his reasons; then Boerhaave would discuss the case and make any necessary corrections in the student's work. This innovation did not meet with unqualified approval by the students, who disliked having their ignorance exposed to fellow students, but the advantages of such a system of bedside teaching over purely theoretical study were so obvious that the method was soon taken over by other medical schools in Europe and later in America.

Boerhaave's influence spread far because of his personal fame,<sup>9</sup> because of the influence of his writings, which ex-

<sup>8</sup> See Osler. *Op. cit.*, no. 969.

<sup>9</sup> It is said by William Burton in his: *Account of the Life and Writings of Herman Boerhaave*. . . London, Lintot, 1743, that a letter addressed "A M. Boerhaave, Médecin en Europe" was delivered to him with no difficulty.

pounded his theories of patient-centered medicine and simplicity of treatment, and because of the pre-eminence of his students who left Leiden to found medical schools in other countries.<sup>10</sup> Among the more eminent students of Leiden were Albrecht von Haller, John Pringle, Anton de Haen, Benjamin Waterhouse, Gerard van Swieten, and John Rutherford, many of whom were founders of other medical schools.<sup>11</sup>

The importance of this group to American medical education has been clearly brought out by Waite, who traced the influence of Boerhaave's clinical instruction on the medical schools of the Ohio valley area.<sup>12</sup> A similar line of descent can be traced through the University of

<sup>10</sup> In 1709 Boerhaave had approximately 300 students. Puschmann. *Op. cit.*, p. 412. See also Van Leersum, E. C. Two of Boerhaave's Lecture Lists. *Proc. Roy. Soc. Med. (Sect. Hist. Med.)*, 11:11-20, 1917.

<sup>11</sup> "The University of Leiden . . . was the center from which, inspired by Boerhaave, numerous medical scholars set out to establish similar centers at Vienna (van Swieten and Albrecht von Haller), Edinburgh (Rutherford), Pavia, Prague, and Rome." *Tercentenary of Clinical Instruction at the University of Leyden. J. A. M. A.*, 110:1686, 1938.

<sup>12</sup> "Some of the early teachers of medicine in America were graduates of Leyden. Of these one of the best known was Benjamin Waterhouse (1753-1846) M.D. Leyden, 1780, the first Professor of Physic in Harvard from 1782 to 1812. Among Waterhouse's early students was Nathan Smith (1762-1829) M.D. Harvard, 1790, who became Professor of Physic at Dartmouth and later founder of the Yale Medical Institution. . . . Among Nathan Smith's earliest students was Jared Potter Kirtland (1793-1877) M.D. Yale, 1812, who was Professor of Medicine in Cleveland Medical College from 1843 to 1867. . . ." F. C. Waite. *Early Medical Schools: Leyden. Bull. Acad. M., Cleveland*, 13:8, 1929.

Edinburgh medical school, founded by John Rutherford, a pupil of Boerhaave, whose American students—Samuel Bard, Benjamin Rush, John Morgan, and William Shippen, Jr.—were instrumental in the establishment of the University of Pennsylvania Medical School and the medical school attached to King's College in New York (Columbia University). Still another line of descent can be traced through Daniel Drake, who was a student at the medical school in Philadelphia, and then founded no less than seven medical schools in the "middle interior valley" of America.<sup>13</sup>

The change from dependence upon the writings of one or more classical authorities to a comparison of different authorities with the actual state of the patient had important repercussions on medical literature. One of the difficulties of clinical teaching is that it presents the inexperienced student with perhaps one, or at the most, a small number of isolated cases of a given disease. Because of his lack of experience the student is unable to tell whether the particular case under investigation is typical of the general run of such cases. To get around this, the clinical professor comments on the case, points out how it agrees or disagrees with other cases, and rehearses alternative diagnoses, prognoses, and treatments. This time-consuming method can be both bettered and shortened if the student has access to the records of other similar cases; in addition, the return to the original records of other

<sup>13</sup> Norwood, William F. *Medical Education in the United States Before the Civil War*. Philadelphia, University of Pennsylvania Press, 1944, and Smith, R. W. Innes. *English-speaking Students of Medicine at the University of Leyden*. Edinburgh, Oliver, 1932.

cases acts as a check on the perpetuation of errors by dogmatic clinical teachers. The importance of the case study, therefore, increases with the use of the bedside method of medical teaching.

Case records can perhaps be conveniently divided into the published and the unpublished records. They may be individual cases, the cases of a particular physician or hospital, or collections of cases of a particular disease drawn from several sources. From the end of the sixteenth century right through the eighteenth century a series of case reports of important physicians, anatomists, and pathologists were issued. Probably the most famous is Giovanni Battista Morgagni's *De sedibus et causis morborum per anatomen indagatis libri quinque* (Venice, Remondiniana, 1761, 2v.), but many works called *Consilia*, *Epistolae*, or *Adversaria* were collections of case histories.<sup>14</sup>

In addition to this method of publishing collections of case histories, the rise of the medical periodical made possible the publication of individual case histories. A large number of the early journals carried reports of individual cases which, when taken in conjunction with the cases reported in the *Consilia*, *Opuscula*, *Miscellanea*, *Recensiones*, and other collections, presented a new problem to the bibliographer: namely, the indexing of parts of a collected work. The first person who met this problem in extenso was Ploucquet, and he solved it in the way in which medical indexers have been solving it ever since: he indexed each case and each part as a separate entity. An immediate effect of the use of this method was to

<sup>14</sup> See the Preface to Ploucquet's *Literatura medica digesta* . . . which lists more than six lines of names of such case histories.

increase the size of the resultant bibliography. In comparison to Lipenius' 20,000 author references, Ploucquet prints more than 200,000 citations.<sup>15</sup> This increase in the size of medical bibliographies was not proportional to the increase in medical literature; in spite of the substantial growth of the medical literature, it seems unlikely that the total literature could have increased as much as tenfold in half a century.

Another effect of the "endless flood of the literature" resulting from the change in the method of teaching medicine was the appearance of digests and guides to the literature. As the amount of literature increased, it became impossible for any person to be acquainted with all of the writing.<sup>16</sup> In order to save the students' time and to lead the reader more easily to the important literature, there was now a growing tendency toward works which pointed out the best that had been written on a particular subject, or which abstracted or digested the literature. Examples of such works are Boerhaave's own *Methodus studii medici*, (Amsterdam, Wetstein, 1751, 2v); Haller's series of volumes under the title *Disputationes*,<sup>17</sup> as well as his *Bibliothecae*, which will be described in more detail below; and Thomas Young's *Introduction to Medical Literature . . .* (London, Underwood, 1813), which contains a list of the books important to a complete medical library, indicating by typographical symbols the most important titles for the

<sup>15</sup> *Ibid.*, p. xii.

<sup>16</sup> Römer and Usteri. *Op. cit.*

<sup>17</sup> *Disputationes anatomicae selectae*. Göttingen, Vandenhoeck, 1746-1752, 7v. and *Disputationes chirurgicae selectae*. Lausanne, Bousquet, 1755-1758, 5v.

beginning student. How much labor these works entailed can perhaps be understood by examining the life of Haller.

ALBRECHT VON HALLER

(1708-1777)

Much has been written about Haller as a physician, as a physiologist, as a botanist, as a Swiss citizen, as a defender of religion; but very little appears in print on Haller as a bibliographer. Occasionally a fellow-bibliographer, traversing the same ground, will comment on the amazing task which Haller set for himself,<sup>18</sup> but for the most part there is silence. When his bibliographies are mentioned, they are usually discussed as minor incidents in his life.<sup>19</sup> This is unfortunate because it gives a completely distorted view of the place of bibliography in Haller's life. As will be shown in the comments on his life and works, bibliography was not for him a thing set apart from the rest of his life, but a reflection of his everyday interests and a by-product of whatever work he was engaged in at the moment. Indeed, after a study of Haller's life, it is hard not to conclude that he could no more keep from producing bibliographies on subjects which interested him than could Gesner. For each of these men to know a subject was to know its literature, and to know its literature was to attempt to make it available to others.

<sup>18</sup> See Sir William Osler's statement in his *Bibliotheca Osleriana*, *Op. cit.*, p. 117, that "Haller is the greatest bibliographer in our ranks. . . . To learning and judgment he added that indispensable quality in a bibliographer, accuracy. . . ."

<sup>19</sup> Cushing, Harvey. Haller and His Native Town. *Amer. Medicine*, 2: 542-544, 1901.

Albrecht von Haller was born in Bern in 1708 of well-to-do middle-class parents. His father was a lawyer who expected his son to follow in his footsteps or else to enter the church; and the son's education was therefore extensive and well-considered. Haller turned out to be a precocious child who at the age of eight lectured to the servants on religion, who had compiled a Hebrew-Chaldaic dictionary by the time he was ten, who in his early teens presented a thesis in Greek for admission to the university, and who preferred serious and moralistic volumes to comedies, and studies to play. Seen through the eyes of a generation of Victorian biographers, Haller appears to us to have been an intolerable prig with not the slightest touch of a sense of humor.<sup>20</sup>

After studying with private tutors in Switzerland, Haller decided that his interest lay neither in the law nor in the church, but in medicine. In December 1723, therefore, he left his country and went to study medicine at the University of Tübingen. Here he found the teaching of medicine at a low ebb; no human corpses were available for dissection, outmoded methods of treatment were taught, and the faculty—except for Camerarius—was inclined to pay little attention to the students.<sup>21</sup> After hearing Duvernoi read Boerhaave's *Institutiones medicae*

<sup>20</sup> See John Fulton's comments on Haller's "inhuman habits of living . . ." Haller and the Humanization of Bibliography. *New England J. Med.*, 206: 323-328, 1932.

<sup>21</sup> Haller, Albrecht von. *Tagebücher seiner Reisen nach Deutschland, Holland, und England, 1723-27; Tagebuch der studien Reise nach London, Paris, Strassburg und Basel, 1727 bis 1728.* Bern, Haupt, 1942. Zimmermann, Johann Georg. *Das Leben des Herrn von Haller.* Zurich, Heidegger, 1755, p. 24ff.

to the class in the old tradition of didactic lectures on an authoritative book, Haller conceived the idea of going to Leiden and hearing Boerhaave at first hand; so in May, 1725, after only eighteen months at Tübingen, Haller left for Holland. In Leiden he found things more to his liking; students were intent on studying and professors on teaching and investigating. Each professor lectured on one subject only, and because he was not responsible to the students, he could insist upon higher standards than it was possible to have in Tübingen.<sup>22</sup> The anatomical theatre was well ordered and well supplied with bodies; there was a laboratory for chemical work, and even a library.<sup>23</sup>

It was at Leiden that Haller first began the systematic reading, abstracting, and weighing of medical literature which he continued to the end of his life, and the results of which were later used in the preparation of the four *Bibliothecae* he published, as well as all his other bibliographic writing.<sup>24</sup> According to Zimmermann, who was Haller's literary executor, the notes which Haller took of his reading were on uniform halvesheets of paper, and were in several series. These sheets were still in exist-

<sup>22</sup> *Ibid.*, p. 25.

<sup>23</sup> *Ibid.* p. 32.

<sup>24</sup> Römer and Usteri. *Op. cit.* See also his own description of his method: "Legi ab anno retro 1725 libros omnis generis, sed tamen, ut medicos soles in commentaries referrem, et utiliora rerum momenta in meas usus decorporem, schedulisque committerem. . . . Quam primum librum absolvi, ab ipse anno 1728 iudicium meum de eo libro, cum enumeratione inventorum, eorumque quae peculiaria haberet, censu continuo in mea adversaria retuli. . . ." Albrecht von Haller, ed. *Methodus studii medici. . . ab H. Boerhaave.* Amsterdam, Wetstein, 1751, v. 1 Praefatio, sig. \*\* 2 recto.

ence in 1901 and were seen by Harvey Cushing when he visited Bern.<sup>25</sup> That Haller continued this work during his entire lifetime is borne out both by the dates of his notes and by his rather touching words in the preface to his *Bibliotheca medicinae practicae*. . . .<sup>26</sup> How time-consuming such work was is also attested by the fact that Haller made it a rule to read and take notes at all his meals and for some time before retiring each night.<sup>27</sup>

After graduation at Leiden and further study in medicine in London and in anatomy and mathematics in Paris, Haller returned to Switzerland to practice medicine. He was not very successful in building up his practice in his home community, although he began the custom there of keeping patients' records, and it was therefore natural for him to accept the post of professor of medicine at the newly founded University of Göttingen offered him by George II of England in 1736. Here Haller remained for the most fruitful period of his life, from 1736 to 1754, and here he sponsored most of the 13,000 writings to which his name is attached either as author, editor, commentator, or dissertation "praeses."<sup>28</sup>

It is not the purpose of this study to discuss the importance of Haller in any field but bibliography. It should merely be mentioned that in the field of physiology his

<sup>25</sup> Cushing. *Op. cit.*

<sup>26</sup> *Op. cit.*, 1: viii. "Senex, infirmus, non possum nisi insipienter spes jaculari longas, & cogor me omni cum studio contrahere, ut ne denique nihil dem, qui plura nimis dare cupivissem."

<sup>27</sup> Baldinger, E. G. *Oratio in laudes meritorum Alberti de Haller*. . . . Göttingen, Dieterich, 1778, p. 16.

<sup>28</sup> Thornton. *Op. cit.*, p. 162.

writings were a fountain head of information for generations. He is still remembered in botany by a plant which Linnaeus named after him as a token of friendship (in spite of the difference of opinion between the two men on the theory of botanical classification). He is considered by some to be one of the founders of German poetry.<sup>29</sup> His interest in and writings on religion continued throughout his lifetime. He was, perhaps, less important in his work as a public official than in any other work he undertook, but he founded an orphan asylum, directed the state salt works, prosecuted "natural healers" for the state, and oversaw a philological school. In the field of bibliography however, he is admittedly without a peer.

What were Haller's purposes in preparing his bibliographies? This man who "absorbed everything he read . . . and seemingly never forgot,"<sup>30</sup> was primarily concerned with saving the beginner in a field from the laborious task of reading and judging everything, as he himself had been forced to do in order to discover the important and worthwhile writings.<sup>31</sup> This reason for compiling exhaustive bibliographies should, perhaps, be compared with the statements given by John Shaw Billings a century later on his reasons for desiring to found the *Index-Catalogue* (see next chapter). In both cases the difficulties which they had encountered in searching for medical literature

<sup>29</sup> Most modern writers seem to consider Haller's poetry poor in quality, but Osler (*Op. cit.*, p. 117) felt that "as a poet Haller is in the first rank of medical poets."

<sup>30</sup> Cushing. *Op. cit.*

<sup>31</sup> Henry, Thomas. *Memoirs of Albert de Haller, M.D.* . . . Warrington, Johnson, 1783, p. 84-87.

for their own work had led to a desire to lessen the task for newcomers to the field. While Billings, however, was willing merely to list the literature (reasons for this will be discussed in later sections), Haller preferred to annotate his citations.

Haller's earliest large work of para-bibliography was his *Primae lineae physiologiae in usum praelectionum* (Göttingen, Vandenhoeck, 1747, 8v.), a work which was not meant primarily as a bibliography, but which was, because of its abundant references to the literature, a comprehensive bibliography of its subject. Since its subject was not medicine, as defined for this dissertation, it will be described only briefly here, as the basis for Haller's later work in bibliography.

The *Primae lineae physiologiae* appeared in eight volumes and contained not only the fruit of Haller's readings on the subject, but also many of his original observations. Magendie<sup>32</sup> once remarked that whenever he thought he had a new idea in physiology he looked in Haller's compendium and found it there already set forth. Each page of the *Primae lineae physiologiae* is divided in two, horizontally, about midway. On the upper portion of the page are the observations of Haller; below are listed the references to other writers, with Haller's comments and arguments.

Much the same form was employed also in his edition of Boerhaave's work, *Methodus studii medici*. In this work, the value of each writing, according to Haller's judgment,

<sup>32</sup> Quoted by Charles Bert Reed. Albrecht von Haller; a Physician—Not Without Honor. Bull. Soc. M. Hist., Chicago, no. 4, p. 40, 1916.

was indicated by a series of asterisks—the more asterisks, the better the contribution in Haller's opinion. Since many living authors were included, it is not surprising that a number of people were hurt.<sup>33</sup>

From the experience with these two works, and from his many years of reading and note-taking, Haller finally proceeded to the publishing of his great *Bibliothecae*: one on anatomy, one on surgery, one on medicine, and one on botany.<sup>34</sup>

The *Bibliotheca medicinae practicae* (Basel, Schweighauser, 1776–1788) consists of four quarto volumes dedicated to John Pringle of England, and contains 52,000

<sup>33</sup> “We may reasonably suppose that very few of these learned men were content with the number of their asterisks; though we cannot pretend to say how far this freedom of Haller increased the list of his enemies and critics . . . M. de Haller hazarded, at this time, his importance and his repose. He was sensible of the risk, but he did not hesitate. In delivering these opinions, his end was to determine what guides should be chosen by young men who design to enter into a profession in which the lives of their fellow creatures are intrusted to their care; and he esteemed this to be one of those circumstances, in which the resolution to expose ourselves to that hatred, which is often excited by the wounds given to self-love, may deserve to be considered as a virtue.” Henry Thomas. *Op. cit.*, p. 87–89.

<sup>34</sup> In relation to the latter, it should perhaps be pointed out that “botany” then encompassed many things now considered to be *materia medica* and pharmacology. The importance of this subject in the medical curriculum of the time can be seen by the care with which the medical schools kept their botanical gardens and the standing of the professors under whom they were administered. A good example is the “Physick garden” of the College of Physicians and Surgeons, New York City, founded by David Hosack, and preserved by the College and by Columbia University for many years. It is now the site of Rockefeller Center.

references to books, pamphlets, and some journal articles. (See Figure 5.) The entire work is arranged by large subject groups, then chronologically under the subject. An alphabetical index of all the writers is also supplied. In each reference the author's name appears in upper case letters, Christian name first and in the genitive form of the Latin name. Frequently a biographical note or the identification of the author follows his name (for example, "medici Imperatorii"). The title of the work comes next and is set off from the rest of the citation by being printed in italics. The place of publication, the date of the first and subsequent editions, and the sizes of each edition are noted. Prices are occasionally listed. Important works are then abstracted and annotated critically at length; lesser works receive more summary treatment.<sup>35</sup>

Here for the first time in the history of medical bibliography we find a work which attempts to be both comprehensive and critical at the same time. It was a magnificent attempt, probably impossible of achievement by any lesser person or one less industrious than Haller.<sup>36</sup> It is a one-man tour de force whose magnitude staggers the

<sup>35</sup> "In *Bibliographia non soli boni libri recenseri possunt, brevem in nucem certe correpturi: necesse est etiam deteriores libros & inanes indicare: Cur non minores libellos? vel eo fine, ut nota aliqua imposita lectores moneantur, ne vano immorentur legendi labore . . . De bonis libris, vera fruge plenissimis, solum gustum dabo, breve nempe compendium aliquot adnotationum, eo uberius ut auctor rarior fuerit minusque notus . . ."*

Albrecht von Haller. *Bibliotheca medicinae practicae . . . Op. cit.*, v. 1: vi. For a further discussion of the importance of including poor as well as good literature, see the introduction to Ploucquet's bibliography, described below.

<sup>36</sup> "Ces . . . ouvrages . . . contiennent beaucoup de choses, bien des erreurs sans doute, mais, en matière de bibliographie, il ne faut jamais

## 338 LIB. VI. SCHOLA HIPPOCRATICA.

hernalis dicitur, peritonæum esse dilatatum ostendit. Lienis tunicam duram vidit, cum viscus sanum esset. Lien scirrhusus adeo magnus, ut totum abdomen repleret. A gauso lien ruber & aridus. Calculi fellei aliquoties, & fellis vesicula scirrhusa. Hydatides in omento. Scirrhii ventriculi, aliquoties. In femina cystitis plena sebosa pinguedine: in ea quasi maxillæ & dentes & capilli. Post duram alvum in coli anfractibus lapidea stercora. Volvulus a scirrho tunice coli officulis pleno. In alia, cum nephritis putaretur, scirrhus in ileo intestino. Pinguedo candæ sebacæ similis (polypus) in cordis ventriculo sinistro. Pulmone dextro absorto æger vitalis. Scirrhus, inde tussis. In iis, quibus cor palpitat, arteriæ magnæ tunicæ dilatantur.

NICOLAI BOCA ANGELINI medici Imperatorii, *de morbis malignis & pestilentibus, de causis, præsignis, medendi methodo, remediis* Madrit. 1600. 4. \*. 1618. 4. CARRERE qui PETRUM vocat. *Peltis bubonibus & carbunculis comitata a. 1599.* in Hispania grassata est, contagiosa, ex vestibis ex Flandria missis propagata. Salubres fuerunt glandule (bubones) & carbunculi, ægrosque vel servarunt, vel certe mortis periculum longius removerunt: si absentes, cita mors superveniebat. Magis servabantur, quibus duo, etiam tres carbunculi prodibant: evanescentes mortem accerfebant: functi etiam erant, qui in pectore aut collo prorumpabant. Medicatio nostri fiebat, per calida auxilia, motum sudorem. Frigidæ potum Cæsaraugustæ saluberrimum fuisse tamen fatetur: pueris theriacam obtulisse. Frigidam etiam in febre colliquativa utiliter dedit. In febre petechiali laudat cucurbitulas, terramque ex Italia adlatam. Variolarum secundam febrem non ignoravit, purgationem tamen rejectit.

Reperi citatas ejus *obss. de variolarum notis relictis sine maculis & foris.*

SIMONIS MAIOLI, non quidem medici, *dies caniculares, h. e. colloquia tria & viginti physica* Ursicil. 1600. 4. TR. Mogunt. 1607. 4. L. & continuatio ib. 1608. 4. L. Mogunt. 1610. 4. TR. Heteropoli 1610. 4. 2 vol. & tomus III. ib. 1612. 4. TR. Tomi VII. Frf. 1642. fol. TR. Offenbach 1691. fol. Medica etiam aliqua admiscuntur. Tres calculi insignes in difficili partu per anum excreti.

JAYME FERRER *tratado de la peste* Valencia 1600. 8. C. de V.

FRANCISCUS PUEZ CASCALÈS *de morbis puerorum* Madrit. 1600. 4. C. de V. *Ej. de affectibus mulierum, una de morbo vulgo garostillo & duabus questionibus de gerentibus utero & de fascinatione* Madrit. 1666. 4. C. de V.

CAROLI GALLI *de febribus pestilentialibus & malignis tractatus bipartitus* Ferrar. 1600. 4. TR.

PETRI VERDERII *de morborum & symptomatum occultis manifestatione causis* diss. Vicent. 1600. 4. Riv.

JUSTI BALBIANI *nova ratio praxeos medica* Venet. 1600. 8. L.

LUCII

Fig. 5. Haller, Albrecht von. *Bibliotheca Medicinæ Practicæ*. . . .  
1776-1788.

reader. "It is the 'Index medicus' from the early manuscripts till the middle of the eighteenth century," says Harvey Cushing.<sup>37</sup> "It was called by his contemporaries an 'abyssmus eruditions' [sic] and is still indispensable to the medical historian," says another.<sup>38</sup> That one man should have been able to compile it by himself seems incredible. Even though medical literature had not reached the bulk it was to reach later, for example in the time of Callisen or Billings, it was still a great flood.<sup>39</sup>

Just as Kekulé may, because of the advances in his field since his time, have been the last person who knew all of chemistry, so perhaps Haller can be considered the last person who was able to know the entire literature of medicine. Later medical bibliographers were to be faced with the necessity of limiting their work in one or more of

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se déconcerter . . ." Alexis Dureau. Contribution à l'Histoire de la Bibliographie Médicale. Bull. Soc. franç. hist. méd., 1: 170, 1902.

<sup>37</sup> *Op. cit.*, p. 544.

<sup>38</sup> Reed. *Op. cit.*, p. 44.

<sup>39</sup> Iwinski (see p. 8, 42) considers that 1,245,090 volumes were published from the invention of printing to 1700 and another 1,637,196 from 1700 to 1800, for a total of 2,882,286 volumes. Wilson (see p. 43) has estimated that 3 to 5 per cent of 16th century publications were medical. In 1950, 4.0 per cent of all published American books were medical, according to Publishers Weekly, 159: 241, 1951. Using this lack of progression in the ratio of medical to non-medical publications, we may hazard a guess that approximately 5 per cent of the 18th century works, or about 81,000, were medical. If we use the same methods, it would appear that somewhere around 305,000 volumes published in the 19th century were medical. It might be interesting to note here the rise in publication of periodicals in the same period. According to Iwinski, 68 periodicals had been published on all subjects by 1690, 910 by 1800, and 59,057 by 1901.

several alternative ways: by period covered, by language, by subdivision of subject, by country of origin, or by some other means; or else they were to be forced to assemble teams of assistants to aid them. No man was ever again to be able to know all there was of the medical literature.<sup>40</sup> Indeed, ground was so quickly lost that soon the attempt was not to know everything that had been written, but merely to keep up with the newest material being published.<sup>41</sup>

### WILHELM GOTTFRIED PLOUCQUET

(1744-1814)

We have alluded in several previous places to the work of Wilhelm Gottfried Ploucquet. Although by no means as outstanding a personage as Haller, with little of the stature of Champier, Gesner, or Linden, Ploucquet still

<sup>40</sup> See the arguments of d'Irsay that Haller's bibliographic work was an outgrowth of the Age of Enlightenment. d'Irsay, Stephen. Albrecht von Haller. Eine Studie zur Geistesgeschichte der Aufklärung. Leipzig, Thieme, 1930, p. 70-74. It has been said of Gibbon that he could not have known everything about Rome if he had lived a little later, when the increase in literature had put such knowledge beyond any one man's control. Since the first volume of Gibbon's *Decline and Fall of the Roman Empire* appeared in the same year as Haller's *Bibliotheca medicinae practicae*, it would appear that the same increase in the volume of the literature was occurring in other subject fields as in medicine.

<sup>41</sup> In 1882 John Shaw Billings attempted to locate the catalog of Haller's private library, for which undertaking he enlisted the aid of Mr. D. J. Crane, then U. S. Consul at Milan, but neither Mr. Crane nor the Milanese book seller Hoepli were able to help him. The entire correspondence is in the files of the History of Medicine Division, Armed Forces Medical Library.

may be considered more important for the development of medical bibliography than his great predecessors. As I have tried to show, Haller was the last of the giants who could make all of medical literature his. With him the personal, exhaustive, critical bibliography on all aspects of medicine perforce came to an end. His choice of the methods for preparing complete bibliographies was unrealistic and sterile because, with the growing expansion of the literature, the method could not be continued.<sup>42</sup> With Ploucquet, on the other hand, there emerges a new form of medical bibliography—the cyclical, series bibliography—which foreshadows the most important publications of the nineteenth and twentieth centuries.

Wilhelm Gottfried Ploucquet was born in Württemberg on December 20, 1744, and died in Tübingen, January 12, 1814. He studied medicine at the University in Tübingen, receiving his degree from it in 1766 with a thesis *De vi corporum organisatorum assimilatrici*. Although not much is known of Ploucquet's personal life, it seems obvious that he must have continued at Tübingen for some time, perhaps even have been attached to the University, for in 1782 he was appointed Professor Ordinarius der Medizin there. He is especially known for his medico-legal writings, having been the first to note that expansion of the lungs occurs upon birth, and that proof a child was not stillborn could therefore be obtained from the presence of inflated lungs. His other writings cover a wide range of medical

<sup>42</sup> Although Haller's *Bibliothecae* may be said to be forerunners of abstract journals, they differed from them in that abstract journals edited by one man rarely attempt complete coverage of the literature.

and legal points; a list of them occupies four closely printed pages.<sup>43</sup>

Ploucquet published the first volume of his *Initia bibliothecae medico-practica et chirurgica*. . . in Tübingen in 1793 and continued publishing two volumes a year until eight volumes had appeared. By that time (1797) the literature which had accumulated since the publication of the first volumes was so great that he decided to publish a supplementary series. This continuation, which was entitled *Bibliotheca medico-practica et chirurgica*, required another five years for publication (Tübingen, Cotta, 1799-1803, 4v.). By then another 40,000 references to new literature had accumulated<sup>44</sup> and a third series seemed inevitable. At this juncture, Ploucquet was faced by a dilemma, as he himself points out in the Foreword to the *Literatura medica digesta*. He could either issue another series of volumes as a supplement to the two series already published, or he could attempt to integrate all the published citations with the new citations he had collected and issue them in one series. In the foreword to his *Literatura*

<sup>43</sup> Jourdan. *Op. cit.*, 6: 450-454, 1824. Further biographical information on Ploucquet can be found in Allgemeine deutsche Biographie. Leipzig, Duncker, 1888, v. 26: 320; Dezeimeris, J. E. and others. Dictionnaire Historique de la Médecine . . . Paris, Béchct, 1832, v. 3: 733-736; Hirsch, August, ed., Biographisches Lexikon der hervorragende Aertze. . . Berlin, Urban, 1932, v. 4: 636, and Poggendorff, *Op. cit.*, 2: 474-475, 1863. A particularly elusive reference to a funeral oration on Ploucquet by Münch (Rede nach der Beerdigung von Wilhelm Ploucquet . . . Tübingen, 1814) seems not to be present in any American library circularized by the Union Catalog of the Library of Congress.

<sup>44</sup> *Literatura medica digesta*, v. 1, p. III.

... he gives the arguments on both sides and explains why he has decided to re-issue the old interfiled with the new in one alphabetical listing. His arguments are self-evident: a fourteen volume set is expensive to purchase, the multiplication of alphabets slows down the user of the complete index, it is necessary to spend much space on repetitions in volumes published in a series, which space could be better employed for printing additional references. As a matter of fact, says Ploucquet, by printing the work in smaller type, by dividing the page into three columns, and by other printer's economies, it is possible to print the entire text of the original two series and the newly obtained 40,000 citations in four volumes, each smaller than the volumes in the original twelve volume set.

With the publication of the four volumes of the *Literatura...* Ploucquet was under no illusion that he had subdued the problem of keeping track of the medical literature;<sup>45</sup> and in 1813, just before his death, he issued one supplementary volume to the entire work. By this time, therefore, he saw and appreciated the wheel of expanding literature on which medical bibliographers were to be bound, for it is this serial nature of the attempts to control medical literature which is the sign of the bibliographers of the nineteenth and twentieth centuries.<sup>46</sup>

The various bibliographies published by Ploucquet are arranged by subject; indeed the entire work loses some of

<sup>45</sup> *Ibid.*, Introductio, XII.

<sup>46</sup> Thornton. *Op. cit.*, p. 163, says that all of Ploucquet's later volumes were issued as supplements to the first series published, the *Initia Bibliothecae*. . . This is an error, which an examination of the volumes themselves will uncover.

its usefulness by the fact that there is no author index. Preceding the main body of the work is a list of sources referred to with the abbreviations under which they are cited in the main body of the work. Not only are books, pamphlets, and dissertations recorded, but for the first time the great mass of journal articles is listed. In the Preface to the *Literatura*... Ploucquet discusses some of the problems with which he has had to deal. These include:

1. The tremendous growth of the literature. "The job would be simpler if the legacy were smaller, but the wealth of material overwhelms us, and we are blinded by too much light. . . To make matters worse, no day passes but someone throws another article upon this mountain of material. . . 'Our life is too short, and there are so many books; money is so scarce, and there is so little time.'"

2. It is impossible to tell the subject of a book or article from the title alone, and reading it takes time. "It is obviously insufficient to record only the titles. . . Titles often promise more than they deliver, sometimes less, sometimes matter of which the title gives no inkling."

3. Many things important to medicine are found in non-medical works. "Valuable material. . . is often included in histories, travel diaries, and in various other genres, where it is least expected." Yet this expands the scope of the work enormously, and makes it more difficult to complete. "Many will say that priority should perhaps have been given to those who wrote about disease, since their work offers the most return for the least effort. . ."

4. Many of the writings indexed are worthless from a scientific point of view, yet they must be included. "A

compiler cannot afford to indulge in the arrogance of deciding what is beneath. . . notice. . . Besides, the profession's favor may change, and what has previously been condemned may later be approved. . . My object is after all not critical. It is the recording, as far as possible, of all that has been done, said, seen, observed by physicians and others, of all ages and nations—whether right or no.”

5. It is impossible to see all the works to which references are made. “Many works. . . are known to me only by title, and although I have read many completely, judgment on those others could not be made.” “It must be admitted that if I had at hand the originals of much of the material. . . or if I could have obtained the best editions, the work would have been the better for it. But it is doubtful that even the best of libraries could possess itself of such a treasure.”

These are Ploucquet's problems. Since his time, perhaps only two new problems have come to plague the bibliographer. These are the problems of foreign languages, now that Latin has been discarded as a universal language, and the problem of difficult-to-obtain documents (whether the difficulty is due to restrictions caused by military secrecy or because of the confused state of the present day “out of trade” publications).

When the eighteenth century dawned, medical bibliography had solved the problems of the mechanics of its task. It had realized the importance of recording as exhaustive a collection of the literature as was possible, the value of the complete citation and the exact reference, and the utility of the varied approach to the literature (by author, by title, by subject, with cross references from

terms not used to terms that were used). Two problems which were to become the concern of the eighteenth and subsequent centuries were foreshadowed. These were the problem of coping with the enormous growth of the medical literature, and the rise of the periodical article.

Changes in the methods of teaching medicine in the eighteenth century led to the need of and demand for case histories. At the same time, the newly founded scientific periodicals were able to provide a means of gratifying that demand. The result was a large increase in the literature of medicine, and a heightening of the problems of medical bibliography.

By the end of the eighteenth century, medical bibliography had devised schemes which helped solve these problems partially. One form of the solution was the critical annotated bibliography, so successfully worked out by Haller; the other solution was the cyclical publication of indexes to the literature, each beginning where the last left off, as characterized by the work of Ploucquet. For the periodical article the method worked out for its indexing consisted essentially of treating each article as a separate entity. These solutions were taken over by the nineteenth and twentieth centuries, as will be shown in succeeding chapters.

#### TRANSITIONAL PERIOD

In the history of medical bibliography, the nineteenth century can conveniently be divided into two parts: the first fifty years when the great medical bibliographies were compiled in the tradition of the eighteenth and earlier centuries, and were, in general, the work of one man who

hoped thereby to subdue the literature of his field; and the second fifty years, which witnessed the introduction of group bibliographies produced by a bibliographic factory working to produce a company product. Such a change might be characterized, with some liberty of language, as the introduction of a part of the industrial revolution into bibliography. An example of the first type of list is Callisen's *Medicinisches Schriftsteller Lexicon*<sup>47</sup> while examples of the second type of list are the Royal Society of London's *Catalogue of Scientific Papers*<sup>48</sup> and the *Index-Catalogue*.<sup>49</sup> In this chapter we will discuss Callisen's work; in the next the bibliographies of the second part of the century.

#### ADOLPH CARL PETER CALLISEN

(1786-1866)

Comparatively little is known of the personal life of Callisen, who is usually overshadowed by the fame of his uncle, Heinrich Callisen, the leading Danish professor of surgery of his time. Adolph Callisen was born in Glückstadt, April 8, 1786, studied there and at Kiel, where he took his surgical examinations in 1808 and his doctor's degree in 1809. He then went to Copenhagen, where (under the patronage of his uncle) he obtained a commission as Reserve Officer with the Danish Army (1809-1812)

<sup>47</sup> Callisen, Adolph Carl Peter. *Medicinisches Schriftsteller Lexicon der jetzt lebenden Aerzte, Wundärzte, Geburtshelfer, Apotheker, und Naturforscher aller gebildeten Völker*. Copenhagen, Callisen, 1830-1845. 33v.

<sup>48</sup> Royal Society of London. *Catalogue of Scientific Papers*. 1800-1900. London, Royal Society, 1867-1925. 21v.

<sup>49</sup> *Op. cit.*

and was appointed Adjunct at the Kirurgisk Akademi (1813), later becoming Assistant Professor, Extraordinary Professor, and Full Professor. He was also Surgeon to the Frederiks Hospital (1810-1814); and finally in 1842-1843, when the surgical academy was united with the University of Copenhagen, he became professor of surgical pathology. Some time during this period, moreover, he spent three years travelling in Germany, Switzerland, Italy, France, and Holland.<sup>50</sup> After holding his professorship at the combined university for one year, Callisen retired to Holstein, from which place he prepared his great work for the printers. There he died at the age of eighty. Callisen appears to have been a quiet, reserved man, an anatomist and pathologist of note, but not much of a clinician.<sup>51</sup> His

<sup>50</sup> Fairly lengthy accounts of Callisen's life can be found in the following sources: Bricka, C. F. (In: Dansk biografisk Leksikon. Copenhagen, Schultz, 1889, v. 3: 339-341, and 1934, v. 4: 482-483); Erslew, Thomas Hansen. Almindeligt Forfatter-Lexikon for Kongeriget Danmark med til hørende Bilande, fra 1814 til 1840 . . . Copenhagen, Forlagsforeningens Forlag, 1843, v. 1: 274-275; Hospitalstid., 9: 52-53, 1866; Ugesk. for læger, 3d rd, s. A., 22: 416, 1876 (Djørup), Norrie, G. Af Medicinsk Facultets Historie. Copenhagen, Munksgaard, 1939, v. 3: 61-62; and Norrie, G. Kirurgisk Akademis Historie. Copenhagen, Levin, 1920.

<sup>51</sup> “. . . hvis Interesse udelukkende optages af theoretisk boglig system. Laegens praktiske Virksomhed yndede han ikke, og som Regimentskirurg, hvor han var nødt til at forestaaen Afdeling paa Garrison-hospitalet; indskaenked han sig til ved smaa Hastvaerksbesøg med Handsken paa at føle Pulsen paa enkelte Patienter medens, han overlod alt det øvrige til sine Underlæger.” C. F. Bricka. *Op. cit.* This story of his using gloves while taking the pulse of his soldier-patients is derived from the obituary in Hospitalstid., *Op. cit.*, but is obviously written by a contemporary of Callisen's who knew him and the situation in Copenhagen well.

great interest was theory as opposed to practice,<sup>52</sup> and although he never cared enough to master Danish and thus be able to speak to his patients directly, he did learn to read Greek, Hebrew, and Latin, as well as French and his native German, that he might study the theories of other writers.

As a lecturer, Callisen was poised, clear, somewhat slow and stiff, but interesting.<sup>53</sup> He talked in a mixture of German, Danish, and Latin; a mixture, which, because of the composition of his class—Germans and Danes educated in Denmark and abroad, and educated to several different levels—had become a kind of *lingua franca* of the University. Although he taught anatomy, practical surgery, bandaging, pathology, and venereal diseases at various times,<sup>54</sup> his great love was surgery, which he always expounded on a historical and theoretical basis. According to one contemporary<sup>55</sup> his great fault was his tendency to spin out theories to fine points without coming to any conclusion. This can be seen today in his commentaries on his uncle's great treatise, *Systema chirurgiae hodiernae*.<sup>56</sup> Callisen made so little impression upon either the medical or lay group in Copenhagen that the author of his obituary

<sup>52</sup> "Callisen var en meget belæst Teoretiker, men egnede sig ikke til praktisk kirurgisk Virksomhed." Erslew. *Op. cit.*, p. 275.

<sup>53</sup> Hospitalstid. *Op. cit.*, p. 52.

<sup>54</sup> ". . . dels som reservekirurg dels som adjunkt, over anatomi, praktisk kirurgi, bandagelaere, patologi og de veneriske sygdomme . . ." Gordon Norrie. Af Medicinsk Facultets Historie. *Op. cit.*, v. 3: 62.

<sup>55</sup> Hospitalstid. *Op. cit.*, p. 53.

<sup>56</sup> System der neueren Chirurgie zum Öffentlichen- und Privatgebrauche . . . aus dem Lateinischen übersetzt und mit Commentär, nebst vielen Zusätzen versehen von Adolph Carl Peter Callisen. Copenhagen, Beim, 1822-1824. 2v.

in *Hospitalstidende* begins with an apology for writing about this "half-forgotten teacher," continues with a remark about the unlikelihood of his ever having finished his "not very attractive work," the *Medicinisches Schriftsteller Lexicon*, and ends with a statement about the good character of the man, in spite of the puzzling life.<sup>57</sup>

The *Medicinisches Schriftsteller Lexicon* is an author list of books and journal articles written by the medical writers contemporary with Callisen (that is, from approximately 1750 to 1830). It is in thirty-three small duodecimo volumes, of which the first twenty-one volumes are lists of works of single authors published before 1830-1835. Two volumes, v. 22-23, contain publications of anonymous authors, listed by title of the work, and two volumes, v. 24-25, contain works of joint authors and collected works. The last eight volumes, v. 26-33, are made up of additions to the titles listed earlier and works of people who had died since 1830. Special lists, such as outstanding medical journals with abbreviations of titles, are also given.

For each author Callisen lists an identifying biographical note, frequently a place name (e.g., "Schierlitz, Friedrich August, zu Müheln in Querfurter Kreise") or a distinguishing remark (e.g., "Schmid, Jacob (2). . . Wahrscheinlich Jam. Smith"), obituaries and portraits, then a chronological, numbered list of the writings, noting translations, new editions, variants and reviews of the work in the same and in other languages. All this wealth of information, unfortunately, is confusing to use because of

<sup>57</sup> Hospitalstid. *Op. cit.*, p. 53. "We appreciate him both as a teacher and a man of great learning, but with regard to freemasonry he will meet with no understanding. . . . In spite of this we have wanted to do what we could to honor his memory."

the poor typography in the first series. (See Figure 6.) The later series are easier to use, for they contain bold face type, large numerals, running heads, and clear print. Only one caution must be noted in the use of Callisen's information. Because he came from a milieu where doctoral dissertations were always printed, he assumed that all the theses listed in the commencement programs of American medical schools had also been printed. Occasionally, therefore, he sets up a bibliographic "ghost."

For the most part, however, Callisen's bibliography is a mine of very useful information. As Dr. Viets has pointed out, "Ploucquet and Callisen, one a subject and the other an author index-catalogue, supplemented one another until the whole, and much more, was packed into the *Index-Catalogue* by Billings."<sup>58</sup>

Callisen's work contains information almost impossible to locate elsewhere; yet it fell short of the needs of its time, and can only be of antiquarian and historical aid today. This is true because it is only an author list and because it made no provision for continuance after the original compiler had died.

Medical literature is used in two ways. Physicians and other scientists working in the field of medicine go to the literature in order to learn what other people have thought and done in situations similar to the one in which they find themselves at the moment. On the other hand, an occasional scientist searches the literature of medicine to see what an individual or group of men has contributed to the body of scientific knowledge, but this use of medical litera-

<sup>58</sup> Viets. *Op. cit.*, p. 115.

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2672. On the structure and growth of seeds, *ibid.* Vol. 27. 1810. p. 1.
2673. On the structure and classification of seeds, *ibid.* p. 174.
2674. On the interior of plants, *ibid.* Vol. 28. 1811. p. 254, Vol. 29. p. 1.
2675. On the motion of the flower of barbery, *ibid.* p. 213, p. 295.
2676. On the hairs of plants, *ibid.* Vol. 30. p. 1.
2677. Of the mechanical powers in the leaf stalks of various plants, *ibid.* p. 179.
2678. On the interior buds of all plants, *ibid.* Vol. 33. p. 1.
2679. On the growth or increase of trees, *ibid.* p. 16.
2680. On the roots of trees, *ibid.* p. 334.
2681. The seeds of all plants first formed in the roots, *ibid.* Vol. 36. 1812. p. 34.
2682. Letter, shewing that the spiral wire is the cause of all motions in plants, *ibid.* p. 266.
2683. On the use of air vessels in plants, in *Philos. Magaz.* Vol. 43. 1814. p. 81.
- 2683<sup>r</sup>. *Französiſch*: *Lamotherie Journ. de Physiq.* T. 35. (T. 78). 1814. p. 432-61.
2684. On the nourishment produced to the plant by its leaves, *ibid.* Vol. 45. 1815. p. 1.
2685. On the phenomena attending the roots of plants, *ibid.* p. 177.
2686. A paper, proving that the embryo of the seeds are formed in the root above, *ibid.* p. 183.
2687. On the phenomena of vegetation, *ibid.* p. 321.
2688. Experiments, introductory to an attempt to exhibit the comparative anatomy of animals and vegetables, *ibid.* Vol. 46. 1815. p. 46, p. 81.
2689. On the anatomy of vegetables intended to substitute many important truths in phytolegy. *ibid.* Vol. 48. 1816. p. 96.

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2690. On the physiology of vegetables, *ibid.* p. 173, p. 401, Vol. 49. 1817. p. 125, Vol. 50. p. 341.
2691. A new view of vegetable life, *ibid.* Vol. 48. p. 278.
2692. On the death of plants, in *Thomson's Annals of Philos.* Vol. 11. 1818. No. 64. Apr. art. 2. p. 252-62.
2693. On actions of lime upon animal and vegetable substances, *ibid.* Vol. 14. 1819. No. 80. Aug. art. 7. p. 125-29.
847. Iheriti (Franz Anton), zu Wiener-Neustadt. Med. Dr., Arzt und Geburtshelfer. Mitglied der med. Facultät zu Wien; practicirte 1800 zu Mödling unweit Wien.
2694. Geschichte eines *Typhus purpurialis cum amentia*, in *Carl Werner Apologie des Brown'sches Systems* Bd. 2. 1800. art. 13. S. 191-206.
2695. *Entbindungsgeschichte der Frau Magdalena II. in B-dorf; eingesandt und mit einem Urtheile begleitet von Professor Boer, zu Wien, in Siebold's Lucina* Bd. 2. St. 2. 1805. art. 6. S. 81-91.
848. Iheriti (Don Jose), zu Madrid? pensionirter Arzt Sr. kathol. Majestät, Mitglied vieler gel. Gesellschaften; er reiste 1793 auf Kgl. Kosten
2696. *Metodo artificial da criar a los recién nacidos y darlos una buena educacion fisica.* Madrid, 1790. 8. 2 Bde.
2697. *Plan d'étude de la médecine, proposé à l'Université de Louvain.* Louvain, chez Michel 1793. 8. 45 S. nebst 1 Kpfr.
- Rec. Médic. chir. Zeit.* 1791. Bd. 4. No. 81. S. 95.
849. Ibréliste (Joseph Maximilian), zu ... *Med. Dr. Argent.* 1810.
2698. *Diss. inaug. du froid et de son action sur l'économie animale; le 11 Septbr.* Strasbourg, 1810. 4.
850. Ideler (August Ferdinand), zu ... *Med. et Chir. Dr. Berol.* 1823. *Er ist geb. zu Do.*

Fig. 6. Callisen, Adolph| Carl Peter. Medicinisches Schriftsteller Lexicon. 1830-1845.

ture is extremely small as compared with the other use.<sup>59</sup> Generally speaking, in medicine, the subject and not the

<sup>59</sup> See unpublished interviews on the use of medical literature gathered by the Army Medical Library's Research Project at Welch Medical Library, Johns Hopkins University and also see Royal Society's Scientific Information Conference. Reports and Papers Submitted. London, Royal Society, 1948, p. 589-610, and unpublished paper on

person who propounded the theory is of supreme importance. This is, of course, even more true in the case of the physical sciences than in the medical sciences, for in the former there is less impact of the observer on the facts than there is in the latter. Wherever objective judgment is the goal, the fact is important and the observer of secondary importance; where the fact changes, or appears to change, because of the presence of a particular observer, then the person who observes the facts takes on added significance. The purely subjective fields of art, music, and literature thus belong to the category of observer-important fields, while mathematics, physics, and geology belong to the category of object-important fields. Medicine lies between the two groups, but is much closer to the latter than to the former.

This does not imply, of course, the unimportance of the observer in science. First of all, the scientist must be able to observe the facts as they are. For example, a color-blind person describing the spread of gangrene through a limb would not be able to report the same facts as would a person who is not color-blind. Second, the observer must be able to record his information so that some one else can find it and perhaps reproduce it. Crawford Long, for example, probably observed accurately enough the effect of etherization on his surgical patients, but, because he did not record it for some time after anesthesia had already been discovered by others, his observations came to nothing. Third, the observer must be honest in his recording of

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the information gathering habits of scientists by Saul Herner, read at Symposium at Welch Medical Library March 3, 1953.

facts. A scientist who listed all the facts which supported his theory, but none of the ones which refuted it, would hardly be worth studying. It is not necessary that the observer of the facts draw the correct conclusions from his facts, unless his conclusions are to be used; indeed, science is full of instances where the facts were accurately collected and described although the conclusions drawn from them were untrue. This may be because of the lack of intermediary information (as, for example, the lack of knowledge of the transmission of plague by *Pasteurella pestis*, at the same time that excellent clinical descriptions of the disease were being written), or because the phenomenon observed had little or no bearing on the central question (for example, the compilation of information on comets in a discourse on causes of the plague).<sup>60</sup>

For all these reasons, the author of a scientific work is important. But he is important more as a check on the reliability of his data than on the data themselves. For that reason, the first use of scientific literature—and therefore indexes to it—is by the subject, not the person.

This is precisely where Callisen's work falls down, for he gives no approach to the subject matter in his great work, which can, therefore, be used only to determine the writings of a particular author. Since this approach is a biographical or historical one, it is clear that Callisen's work is more valuable to his successors, to us today, than it was to his contemporaries, who found the work of Ploucquet, although older, better. It is, perhaps, the reason

<sup>60</sup> See, for example, Thucydides' discussion in his work on the Peloponnesian War. Bk. 2, Chap. 7, Plague in Athens.

for the remark of the writer of Callisen's obituary about the unattractiveness of the work; and it also explains in part why copies of Ploucquet are more difficult to find today than copies of Callisen and more expensive to purchase when found.

We might well ask ourselves, therefore, why it was that Callisen decided to bring out an author, instead of a subject list. There seem to be no records on the matter extant, but some conclusions can be drawn from the personality of the man himself, as recorded by his contemporaries.

In all the biographical sketches we are told that Callisen was more of a theorist and more of a literary physician than either a clinician or an experimenter. His erudition is praised highly, especially his knowledge of the writers of earlier centuries.<sup>61</sup> As an antiquarian himself, as a person who looked up to the classical writers, it is probable that Callisen's first interest was to learn who had said something; it was only his secondary interest to learn what was said. Callisen was thus the Miniver Cheevy of his time, and was just as remote from the interests of his colleagues as was that misplaced medievalist; as a result his great work was of comparatively little help in solving the problems of medical bibliography of his day.

<sup>61</sup> Hospitalstid. *Op. cit.*; Erslew, *Op. cit.*; Norrie. Af Medicinsk Facultets Historie, *Op. cit.*





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