Sauvages’ Paperwork: How Disease Classification Arose from Scholarly Note-Taking

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Abstract

What was classification as it first took modern form in the eighteenth century, and how did it relate to earlier ways of describing and ordering? We offer new answers to these questions by examining medicine rather than botany and by reconstructing practice on paper. First among disease classifications was the ‘nosology’ of the Montpellier physician François Boissier de Sauvages de Lacroix. Analysis of his hitherto unstudied notebooks and of the nosology’s many editions (1731-1772) shows that Boissier de Sauvages broke with earlier physicians’ humanistic ordering of disease while sustaining the paper practices they had used. Scientific method was scholarly method. Classification arose through an incomplete break with, and intensified practice of, a past library-based way of ordering the described world. A new empiricism of generalizations (species) arose out of an older one of particulars (observationes). This happened through the rewriting

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not the replacement – of the canon of disease knowledge since antiquity and its reordering on the printed page.

Keywords


In their sweeping panorama of early modern France, Laurence Brockliss and Colin Jones paint an unflattering picture of medical science. Practitioners and scholars alike, for all their invocations of a new scientific age of health, had no clear and agreed idea of how to acquire knowledge. While demanding observation, experience and experimentation – summed up in the French term expérience – they failed to establish criteria for the quality and scope of that expérience. Doctors at the sick-bed groped in the dark, partly because in those pre-statistical times no-one knew how to collate and evaluate observations. The discrepancy between the proclaimed aspirations of the new sciences and their actual practice was conspicuous in the notebook of François Boissier de Sauvages de la Croix (1706–1767): an “utterly and delightfully disorderly pot-pourri of observations” from bedsides and dissections, from hospital and field – along with notes on the wellbeing of Sauvages’ children and cats, and on his self-experimentation. Another look into the notebook reveals more genres, such as experiment records, physiological discussions, excerpts from medical literature, drafts for later publication. This ‘pot-pourri’ encapsulates – to cite once more the standard work on early modern medicine – the incoherence of the period’s ‘research methodologies’.1

By this point, their readers should be wondering. One reason is obvious. Modern medicine ranks Sauvages among the heroes of its history and celebrates the author of Nouvelles classes de maladies, first published in 1731, as the founder of medical nosology, an undertaking that continues to this day, imposing mandatory terminology and categorisation on the thinking and actions of medical practitioners – currently in the form of the International Classification of Diseases (ICD) or the Diagnostic Statistical Manual (DSM).2 In medicine as in

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other fields of activity, systematic classification is seen as the essence of order. It assigns a defined place to every disease, like items in a well-ordered household. New syndromes or pathologies sooner or later find their place through periodic revisions of the system; others are dropped from it. Are we really to believe, contemplating Sauvages’ notebook, that modern clinical order began from such a pot-pourri?

It might of course be objected that every orderly state – such as the household just mentioned – is preceded by a state of disorder. But this line of thinking only leads to further puzzlement. Following up the reference in Brockliss and Jones, we find in the Archives départementales de l’Hérault, in Montpellier, not only the ‘pot-pourri’ notebook catalogued as Livre de raison, but also a hitherto unstudied manuscript bundle ascribed to Sauvages. Catalogued as Matière médicale, these documents date from Sauvages’ student days (1722–1726) – and are not in the least disorderly. Quite the contrary: as we aim to show in the first section of our paper, these notes represent a humanist ordering of knowledge, using methods inherited from the Renaissance.

A third objection to the idea that Sauvages and, by extension, early modern medicine lacked research methodologies lies in the chronology of his life’s work. The earliest entries in Livre de raison date from May 1745, that is, after the appearance of the first editions of Sauvages’ nosology. And by the time the final notebook entries were being made in April 1765, Sauvages had published the fifth edition of his classification. Thus disorder did not precede order but accompanied work on the nosological system throughout. Nouvelles classes appeared in revised form in 1739 as Pathologica methodica, which went through

4 Archives départementales de l’Hérault (hereinafter ADH), 10 F 51. Williams gives a brief account of Sauvages’ Livre de raison in her study of vitalism in Montpellier: Elizabeth Ann Williams, A Cultural History of Medical Vitalism in Enlightenment Montpellier (Aldershot, 2003), 33–95.
5 ADH, 10 F 53. Not all of these manuscripts are in Sauvages’ hand.
6 Of the very rare first edition, two versions are documented from Avignon (1731, 1732). We cite the 1731 edition held in Erlangen University Library.
second and third editions in 1752 and 1759. A further revision came out as *Nosologie méthodique* (1762), then as *Nosologia methodica* (1763). The definitive edition followed posthumously in 1768, in Latin, and in 1772 in French. Given what we know of the refined ways of notetaking and writing by which naturalists ordered nature on paper in the eighteenth century, the question arises whether this coincidence of order and disorder actually had a function for Boissier de Sauvages. Did it reflect the development of a new way of working that was incompatible with managing information in the humanist tradition exemplified in his own earlier notebooks? How did the new project of demarcating and systematically arranging disease kinds relate to the old humanist practices of indexing and of collecting the fruits of reading by topics or ‘commonplaces’ (*loci communes*)? And might apparently disorderly bookkeeping have somehow been a feature of techniques that sustained the decades of work it took Sauvages to create the nosological system?

There was, we contend, method in his pot-pourri. It belonged to a transformation of the method of *loci communes* into a system of medical classification. We reconstruct this transformation and its underlying paper techniques step by step.

In the first section, we show how Sauvages used humanist note-taking when he learned medicine at the bedside. The second section traces the transition from sorting observations into given categories – commonplaces – to creating new categories out of similarities and differences among observations, the method Sauvages shared with ‘the botanists’. How excerpting by similarities and differences also turned the particulars of case histories into general disease descriptions is illustrated in the third section, in which we reconstruct the invention of a new disease species. Section four shows how the classificatory system absorbed new information from the ever-growing literature of medical observations and how the system evolved, edition by edition. Here, it turns out, Sauvages’ notebook is not manuscript ‘behind’ printed result. Rather, the books, too, functioned like notebooks, and notebook and published classification key (“Cléf de classes”) worked as complementary elements of a writing system that

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was historically specific and mixed different kinds of paper technology.\textsuperscript{10} We take the term paper technology to mean the sum of all forms of writing (including lists, tables and blank forms), text-handling techniques (such as excerpting, indexing), paper forms and assemblages (from index cards to bound files) and associated tools (pen, glue, scissors) in their use – and their unintended as well as intended effects – in the recording, accumulating, sorting, taking apart and putting together of information.\textsuperscript{11} Histories of paper technology and of ways of reading and writing, we conclude in the fifth and final section, can be not only histories of the managing of information, but new histories of science and medicine, even in their particular methods and forms – such as classification and the creation of kinds, of species. What was classification as it first took modern form in the eighteenth century, how did it work, and how did it relate to earlier activity of describing, collecting, and ordering? What was the status of its objects – species, general descriptions – and how might a close look at these affect histories of empiricism? We offer new answers to these questions by considering an example less well known than that of botany or natural history, namely medicine, and by reconstructing practice on paper.

\textbf{Humanist in the Hospital}

How knowledge was assembled in the early eighteenth century can be seen in Sauvages’ extant student notebooks. One notebook gives an overview of the \textit{Matière médicale} taught by Jacques Lazerme (1676–1756); another includes excerpts from Antoine Deidier’s \textit{Compendium morborum abdominis}, along with notes from lectures and from Lazerme’s interpretation of an aphorism of Hippocrates (dated 1724). A further notebook of 80 pages is devoted exclusively to patient observations. Most of the notebooks begin with an index designated \textit{Tabla}. Taking notes under \textit{loci}, \textit{tituli} or \textit{capita} and making them accessible through an index belonged to humanist textual method still taught at grammar school and university in the eighteenth century.\textsuperscript{12} This method was used to note and order what one read, or heard in lecture, or – in a transfer of technique from


pedagogy and rhetoric to natural inquiry – what one observed. Note-taking in the form of *loci communes*, or commonplacing, could function as one of the research methodologies that Brockliss and Jones sorely missed.

Early modern physicians often kept patient observations in the same way they kept textual commonplaces. Sauvages’ case collection illustrates this vividly. It records patient observations from early 1727 to mid–1728. Mention of bed-number or admission circumstances indicates that the observations were made in the hospital, most probably at the largest of Montpellier’s three hospitals, the Hôpital Saint-Eloi. By this time Sauvages had completed his studies and was evidently working under the hospital’s medical director, Antoine Deidier (1670–1746) as his personal assistant (*médecin adjoint*) – a position regularly filled on an official basis (*en titre*) from 1732. Interposed instructions and explanations attributed to ‘M. Deidier’ indicate that the writer was undergoing training. Published and unpublished case collections often came from diaries of medical practice – “excerptae ex diario practico.” Sauvages’ patient observations of 1727–28, by contrast, are among the earliest known notes taken as part of clinical training in a hospital rather than sharing in the practice of a senior colleague or attending a medical college. The clinic-in-the-hospital model was

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15 Joseph Grasset, *Le médecin de l’amour au temps de Marivaux: étude sur Boissier de Sauvages d’après des documents inédits* (Montpellier, 1896); The chronology suggests this was the case: from 1711 to 1714 Antoine Deidier was *médecin adjoint en titre* to Raymond Vieuxsens who managed the *service médical* at the Hôpital as *médecin chef* from 1694 to 1714, a post to which Deidier succeeded in 1714; the position *médecin adjoint en titre* was routinely filled from 1732 (Louis Dulieu, *La Médecine à Montpellier. Tome iii* (Avignon, 1983), 573 f.).


developed in Leiden and eventually institutionalised under Herman Boerhaave in the late 1720s and propagated by Boerhaave’s pupils.18

Scholarly practice in the hospital: that is what we see in Sauvages’s notebook of 1727–28. On the one hand, the writing is mainly rough and immediate. The observations were fresh: “Il est mort hier et aujourd’hui samedi on le disseque à l’université.” Here and there a date has been inserted retrospectively in passages of this kind, as if Sauvages realised belatedly that noting ‘today’ would later not serve him well. On the other hand, the cases are not recorded in diary or journal form, that is, in chronological sequence. A page headed “fiévres continuées” contains a selection of finds from the literature, compiled by “Alexandre le Medecin et Mr Friend après Galien,” while on the following page, dated 16 May 1727, the case history of a patient suffering from this fever is reported along with a note on his treatment “hier et aujourd’hui.” Yet a form of erysipelas (“eresipele charbonneux”) at the end of the notebook was written in February, several months before.19

Thus Sauvages took note(s) of bedside experience during hospital training not according to the chronology of that experience, but according to the common topics, or loci communes, of that training. The index at the front of the notebook shows his technique. Sauvages would write down all page numbers – here, 1 to 80 – on the first page. Every third to fifth page number would be pre-titled with the name of a disease; later, when he encountered that disease, the relevant observations would be noted on the pages thus reserved for them. Under the heading erysipelas (‘eresipele’), for example, one finds both the coal-black form mentioned above (‘eresipele charbonneux’) and, separated by a


19 Matière médicale: 19, 20, 82 (ADH, 10 F 53).
horizontal line, the note on a patient in bed 15 (“la 15e a un eresipele aux jouës”) (See the third section of text in Fig. 1.) Viewed as a whole, the notebook conforms to the systematic rather than alphabetical or chronological way of ordering patient observations as *loci communes*. The prescribed *tituli* or *loci* follow a rough pathological sequence: inflammations first, then fevers, evacuations, mental disorders, pains, and finally emaciations. For some pathological conditions, Sauvages was able to record two or even three observations. The pages set aside for other *loci* remained blank. Commonplacing did not preclude taking note of the less common: occasionally he recorded observations unforeseen in the index. Sauvages’ notebook thus belongs to the early modern project that transformed bedside notes into a new medical genre, the case report or *observatio*.22

We now know that Sauvages’s large later notebook or *Livre de raison* did not lack order because he did not know how to keep orderly records. Quite the contrary: he had been trained in scholarly information management, and his student notes show that he was versed in the techniques of excerpting and indexing associated with *loci communes*.

**From Commonplacing to Comparing and Regrouping**

Sauvages understood what he was criticising when in 1731, with a gesture at anonymity (S*** de L**), he published his *Nouvelles classes de maladies*, the 450-page work which was instrumental in securing him a chair in the Montpellier faculty and which became in retrospect the first of the many editions of his nosology. This publication dismisses the *loci*-based system of taking and keeping notes: not the practices of excerpting and collecting, but the usual manner of categorising disease descriptions (1731: ix-x). In later editions, Sauvages continued to illustrate and argue the case for this rejection: alphabetical arrangement brought together unrelated disorders, such as apoplexy (stroke) and alopecia (hair loss), paralysis and paronychia (inflammation of the nailbed), and wrenched cognate diseases such as arthritis and rheumatism far apart (1763, 20 Michael Stolberg, “Medizinische Loci communes: Formen und Funktionen einer ärztlichen Aufzeichnungspraxis im 16. und 17. Jahrhundert,” *NTM. Zeitschrift für Geschichte der Wissenschaften, Technik und Medizin*, 21 (2013), 37–60.

21 Ibid., 7, 55. See the entry ‘phrenesie’, ibid., 2, 31. Space had almost certainly not been kept in advance for an *observation curieuse* (ibid., 50).

Figure 1  Sauvages’ notes on erysipelas (‘eresipele’) in Matière médicale, 82 (by kind permission of the Archives Départementales de l’Hérault).
Vol. 1: 26). As for anatomical instead of alphabetical order, this was stuck in the "jargon des Scholastiques" and misleading (1772, Vol. 1: 105). Who, he asked, could seriously profess to distinguish in the live patient between an affection of the spleen and one of the liver, or one of the small and one of the large intestine? Such a difference would often be barely discernible even at autopsy. And he saw much potential for error in any attempt to distinguish between diseases on the basis of characteristics, causes or etiological mechanisms on which there was no consensus among the schools. Instead, category definitions had to be "clear and brief" – which was why they must not be based on "hypothetical, purely pathological, let alone imaginary causes, as handed down from the Ancients and still practised by the Germans" (1731: xvii).23

The alternative proposed by Sauvages was a \textit{methodus systematica} in which diseases comprise a system of species within genera, orders, and classes. This order, he announced on the title page, was similar to that of the botanists ("semblable à celui des Botanistes"); ibid.: title). No wonder later commentators and historians interpreted nosology as the application of botany to medicine and the reification of disease into entities like plants – a decisive, modernizing moment in Western medicine.24 This, we argue, is to misunderstand Sauvages's intentions and practices and, as we shall see in the final section of this paper, their consequences for medical knowledge. Nowhere did Sauvages compare diseases to plants as entities. And exactly as he announced, he did not adopt botanical method, but method that was also used by botanists. This method, he wrote, was the "right method of learning and teaching" (\textit{recta discendi & docendi methodus}), which was the foundation of all science (\textit{unica mater scientiae}) and not only of botany (1739: 94).

This method differed from that of \textit{loci communes} by nesting categories (species within genera within orders within classes) and by defining these logically. Each \textit{locus}, each position in the system, was defined by characteristics it shared with others (generic designation) and by those not shared with other (species designation). The same logic of differentiation defined higher categories in the system. Thus, for instance, characteristic of all fevers is accelerated pulse and impairment of living ‘fonctions’, manifested in shivering, hot and cold sensa-

23 We do not know whether 'les Allemands' refers to specific writers or a general trend.
tions, weakness, nausea, abdominal pain and headache. The regularity and sustained duration of the increased pulse rate, on the other hand, distinguish the class of fevers from all other classes, in particular the inflammatory disorders, in which, Sauvages says, the accelerated pulse is “symptomatic, accidental, secondary and variable” (1731: 33f.). Yet Sauvages did not deduce the categories and then fill them. Nor did he build his system up from particulars, as Bacon had instructed. Instead, he grouped diseases into classes (nouvelles classes), and then worked back to establish the intermediate categories of order and genus.25

In this way, Nouvelles classes was simply the first printed result of an ordering activity that would continue for many years. How did this look on paper? Almost 400 of the work’s closely printed 450 pages are devoted to a seemingly endless listing of all diseases. A total of 2,400 disease species are grouped into genera, orders and classes briefly defined by Sauvages on the basis of differentiating characteristics. This listing thus roughly resembles the index of disease categories with which Sauvages began the notebook of observations he kept as a hospital intern. And both functioned similarly by structuring future paperwork in advance. But whereas the student notebook then filled with bedside observations that fit the categories prescribed by the index on its first page, the listing presented by the Nouvelles classes did not. It was, moreover, itself the object of work. Its second and third printed versions – published as Pathologia methodica in 1739 and, further developed, in 1752 – broke off at the level of genera – without listing the species and their differentiating characteristics. Seven years later, in the fourth version published in 1759, the species reappeared within each genus – yet not with definitions, as in Nouvelles classes, but reduced to a list of names. Much of the book looks like the page in Figure 2, the book as index to a book yet to be written. In the later editions, this book-length index was finally filled in and every species described in detail, such that the one volume of 1731 swelled to many. In sum, the successive versions of Nouvelles classes built up an index that encouraged and structured collecting, as had the humanist tituli, yet unlike those headings, also registered the comparing and grouping that now belonged to that collecting activity.

The evidence that Sauvages laboured from the date of his appointment at Montpellier to fill the categories in his register is provided by the large notebook Livre de raison. Some of its entries reappear word-for-word, or nearly so, in the Nosologia of 1763, like the description of inoculated smallpox (variola inoculata).26 In autumn 1761, to give another example, Sauvages excerpted into his Livre de raison an observation by Johann Friedrich Meckel the Elder (1724–

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25 Martin, “Sauvage’s Nosology.”
26 Livre de raison, 14 (ADH, 10 F 51), François Boissier de la Croix Sauvages, Nosologia method-
1774) which had been published in the Memoires of the Berlin Academy three years earlier as *inflammatio cordis* and which, two years later, would be slotted into Sauvages’s *Nosologie* as *carditis spontanea* (1763, Vol. 1: 482). Sauvages trawled in good humanist style through every publication accessible to him, searching for observationes he could use. Besides the obvious journals such as *Histoire de l’Académie Royale des Sciences et des Belles-Lettres de Berlin* and *Recueil périodique d’Observations de Médecine, Chirurgie, Pharmacie*, Sauvages

also excerpted from travel accounts and other genres relevant to natural history. From Linnaeus’ *Flora Lapponica* (Linnaeus 1737), Sauvages plucked the one medical *observatio* to be found in the book, buried in a several-page description of garden Angelica, and transcribed it into his notebook.28

Yet Sauvages excerpted not merely to extend his medical species collection. Whereas Carl Linnaeus (1707–1778) had alternating blank pages bound into a personal copy of each new edition of his *Systema naturae* so that he could add new species by hand straight into the book, Sauvages opened up the structure of *Nouvelles classes* afresh with every reissue. He did more than rearrange the species in his collection. He re-examined its categories. Between February and October 1748, for example, Sauvages was excerpting from Linnaeus’ journey descriptions.29 He transcribed into his notebook Linnaeus’ *observatio* dealing with a type of colic widespread among the Sami, noting “Linnae Fl Lappon pag 69.” But already in the act of excerpting, a first shift of meaning occurred. Where Linnaeus supposed this disorder, *ullem* or *hotme* to the Sami, corresponded to Scheuchzer’s spasmodic colic,30 Sauvages literally crossed out the epitheton ‘spasmodica’ while excerpting and replaced it with ‘lapponica’. This correction was not trivial. Combining genus (*Colica*) and epitheton (*lapponica*) ventured a new species in the process of excerpting. Moreover, the new epitheton *lapponica* generated a difference that Sauvages, writing within the procedure of *méthode systematique*, could not ignore “Colica spasmodica Scheuchzeri?”31 he added, thus keeping open the question of the distinctiveness of *ullem* and opening the question of the nature of Scheuchzer’s colic. The question marks the creative impulse of this note-taking. Fifteen years later, *Nosologia methodica* listed both species. The question-mark was gone. Where Linnaeus had considered *ullem* a local variant of the colic that Johann Jakob Scheuchzer (1672–1733) had observed among mountain peoples, Sauvages identified two species – and put them in different classes: the *ullem* described by Linnaeus, which became the species ‘colica lapponica’ in the genus colics; and ‘colica spasmodica Scheuchzeri’, no species name but an exemplary *observatio* that served as type-document of the species ‘Hepatalgia aeruginosa’ in the class of ‘Dolores’ (1763, Vol. 4: 158).32

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28 *Livre de raison*, 54 (ADH, 10 F 51).
31 *Livre de raison*, 54 (ADH, 10 F 51)
32 Johann Jakob Scheuchzer, *Uresiphoites Helveticus, Sive Itinera per Helvetiae Alpinas Regiones Facta Anni MDCCCI, MDCCIII, MDCCIV, MDCCV, MDCCVI, MDCCVII, MDCCVIII, MDCCIX, MDCCX, MDCCXI* Plurimis Tabulis aeneis illustrata (Leiden, 1723), 14.
Sauvages’ notebook thus served as much more than *florilegium* of humanist reading and knowledge acquisition. And as less: Sauvages did not quote from it. The printed entry (but not the heading) for the above example in *Nosologia methodica* follows the original text of Linnaeus’s *Flora lapponica*, ignoring all abbreviations and alterations in the handwritten excerpt. And yet Sauvages’s *Livre de raison* must have been to hand during revisions of *Nouvelles classes*: not as the “storehouse of observations and experiments” that typified humanist natural-history research, but as a *methodus*. Like a generator churning out new questions, the noting of differences and similarities drove an intensive reading programme. Sauvages must have consulted Scheuchzer in the original, for unlike the reference in Linnaeus, the *Nosologia* gives the page number. And noting from Scheuchzer generated the next difference, the next question-mark: “Colica spasmodica Angelimontanorum Scheuchzeri, Iter Alpinum i pag. 12. an Rachialgia metallica?” (1763, Vol. 4: 158).

Transcribing and reducing disease descriptions into a two-tiered identification system of shared and distinguishing features (genus and species) can be compared to the difference-generating algorithm of a symbolic machine – the expression used by Sybille Krämer (1988) to characterise the procedural logic of formulae and formalisations. On a half-page of the *Livre de raison* (Fig. 3), Sauvages has listed forms of mutism, a neat line for each, charting a field from worm-induced speech loss to the mutism described by Galen following paralysis from relapsing fever to apoplexy-induced speech loss. Immediately below this list for speech loss appears one for appetite loss (*anorexia*), differentiated by characteristics either symptomatic or causal or both – from stomach paralysis to melancholy to *stupor*. Another list begins adjacent. Clearly it was listing day for Sauvages – thus signaling the way in which such listing was itself a mode of work and almost combinatory in the recurrence of differentiae, like bilious or catarrhal on this page, across different genera.

Numerous such lists in the *Livre de raison* seem at first glance like the memory exercises of a Latin pupil or a beginning medical student. This is because they partake of a similar machinelike repetitiveness of reading and writing. Yet Sauvages’s lists did not commit to memory. They creatively interrelated other texts and textual work. In form, function, and creative potential, they resemble indexes to collected *observationes*. But what book do they index? None, for they match neither the relevant sections in the *Nouvelles classes* (1731: 234–37

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34 Ibid., 36.
for anorexia) nor other entries in the notebook Livre de raison nor – as Table 1 shows – the indexes of Pathologia (1759) or Nosologia (1763). While several of the dual designations are retained, striking differences bear witness to hours of toil devoted over the years to repeated comparing, including, excluding, and relabeling – all made possible by, and partly happening through, lists handwritten or printed. Table 1, showing anorexia lists from 1747 to 1763, makes clear one trend: a reductive, category-defining transformation from often multiple extracted differentiae (like Anorexia a cachectiche serosa fermenta aequistram) to strict binomials (Anorexia cachectarum) (see Table 1).

From Case Histories to Histoire Générale

In these ways, Sauvages remained largely faithful to the humanist practice of collecting and of excerpting from collections of observationes. Yet his methodus imparted a different form to what was excerpted and assembled. In the multi-stage process of knock-on effects just sketched, textual techniques of excerpting and index-like listing could generate several type-documentations and categories from the discovery of a single new observatio in the literature. Multiplication...
Anorexia a paralysi ventriculi
Anorexia a febribus, fermenti inopia
Anorexia a pituita phenacelum abducente
Anorexia bilosa
Anorexia a cachectiche serosa fermenta aequistram.
Anorexia ab cepha captiva
Anorexia plethorica a clorosi
Anorexia melancholica, a studio mania
Anorexia a mania, debilitate
Anorexia a stupore stomachi, ab operatis, narcoticis
a spirituosis noxos fibras [illegible]. vide Lipp
Anorexia a pathematibus
Anorexia simulata
Anorexia syphilitica D. Cusson Obs.

Table 1: Genus Anorexia in Sauvages’ manuscript and printed works

<table>
<thead>
<tr>
<th>Livre de raison (winter 1747)</th>
<th>Pathologia (1759)</th>
<th>Nosologia (1763)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anorexia a paralysi ventriculi</td>
<td>Anorexia paraletic Sennert</td>
<td>Anorexia paraletic</td>
</tr>
<tr>
<td>Anorexia a febribus, fermenti inopia</td>
<td>Anorexia febrilis Boerh.</td>
<td>Anorexia febrilis</td>
</tr>
<tr>
<td>Anorexia a pituita phenacelum abducente</td>
<td>Anorexia a pituata Boerh.</td>
<td>Anorexia pituitosa</td>
</tr>
<tr>
<td>Anorexia bilosa</td>
<td>Anorexia bilosa Bianchi</td>
<td>Anorexia biliosa</td>
</tr>
<tr>
<td>Anorexia a cachectiche serosa fermenta aequistram.</td>
<td>Anorexia venere exhaustorum</td>
<td>Anorexia exhaustorum</td>
</tr>
<tr>
<td>Anorexia ab cepha captiva</td>
<td>Anorexia plethorica Bonet Sepulch.</td>
<td>Anorexia plethorica</td>
</tr>
<tr>
<td>Anorexia melancholica, a studio mania</td>
<td>Anorexia melanolica Rammazin.</td>
<td>Anorexia melancolica</td>
</tr>
<tr>
<td>Anorexia a mania, debilitate</td>
<td>Anorexia a saburra</td>
<td>Anorexia a saburra</td>
</tr>
<tr>
<td>Anorexia a stupore stomachi, ab operatis, narcoticis</td>
<td>Anorexia mirabilis</td>
<td>Anorexia Neephytorum</td>
</tr>
<tr>
<td>a spirituosis noxos fibras [illegible]. vide Lipp</td>
<td>Anorexia a pathematibus</td>
<td>Anorexia arthritic</td>
</tr>
<tr>
<td></td>
<td>Anorexia simulata</td>
<td>Anorexia syphilitica D. Cusson Obs.</td>
</tr>
</tbody>
</table>

of categories is a familiar effect of such difference machines.36 But the same techniques also eliminated empirical multiplicity. For the marking of differences and commonalities could compress multiple observationes into a single species. How this happens is well illustrated by the example of a truly classical fever. Described in antiquity by Hippocrates and Galen, leipyria or intestinal fever had been entered by Sauvages back in the first edition of Nouvelles classes under the order of remittent fevers (1731: 66): “Triteophia leypiria. Manget. Bonet.

Sybilla Krämer, Symbolische Maschinen: Die Idee der Formalisierung in geschichtlichem Abriff (Darmstadt, 1988).
Sepulchr." In the edition of 1759 (p. 260), this topos was no more than a slot kept open by reference to \textit{observationes} compiled in Jean-Jacob Manget’s (1652–1742) encyclopaedic ‘library’ of disease. But soon, in the course of his reading, Sauvages came across what was in effect a more up-to-date case collection that seemed relevant.

In 1757 in the new journal \textit{Recueil périodique d’Observations de Médecine, Chirurgie, Pharmacie}, there appeared an article by Johann Gottfried Hahn (1694–1753) on a recent epidemic in Breslau, where he was dean of the medical faculty and district medical officer. Conforming to the conventions of describing epidemics since Thomas Sydenham (1624–1689), Hahn began by detailing the local conditions prevailing before outbreak of the epidemic: saturated ground, floods, the living and working conditions of poor people, weather and general climatic conditions with emphasis on unhealthy north-westerly winds. Eleven case histories followed, ranging in detail from scant to abundant. Hahn, too, had fallen ill, and he recounted his own case history with impressive precision. Whatever the level of detail, each of these eleven \textit{observationes} followed the pattern of a complete case history. Beginning with a description of the striking signs, continuing with a summary of significant changes over the course of the illness, and ending with its conclusion in recovery or death, each is an identically organised report as though straight from the medical officer’s well-kept casebook. Table 2 gives an overview of the first eight \textit{observationes}. Case 1 was that of a 50-year-old workman who fell ill with high fever, general exhaustion, head and cardiac pain, bilious diarrhoea and insomnia; Case 2, of a 30-year-old woman, who likewise suffered from high fever, a general sense of oppression and severe headache, but on the second day of illness, concurrent with the onset of menstruation, had bilious vomiting, acute thirst, burning heat internally and dry tongue, and who finally died in convulsions. Similar symptoms characterised Cases 3 and 4, two women who had been in perfect health; they differed in that one had facial erysipelas by the third day and died, while the

\begin{table}
\centering
\begin{tabular}{|c|c|}
\hline
\textbf{Case} & \textbf{Description} \\
\hline
1 & 50-year-old workman with high fever, general exhaustion, head and cardiac pain, bilious diarrhoea and insomnia. \\
2 & 30-year-old woman with high fever, general oppression and severe headache. On the second day of illness, concurrent with the onset of menstruation, had bilious vomiting, acute thirst, burning heat internally and dry tongue, and died in convulsions. \\
3 & 35-year-old woman with severe headache, fever, and facial erysipelas. \\
4 & 40-year-old woman with severe headache, fever, and facial erysipelas. \\
\hline
\end{tabular}
\caption{Overview of the first eight \textit{observationes}.}
\end{table}

\textsuperscript{37} Johann Juncker, \textit{Conspectus Pathologia ad dogmata Stahliana praecipue adornatae et semeioiologiae potissimum Hippocrático-Galenciae in forma tabularum repraesentatus} (Magdeburg, 1736), 156.
\textsuperscript{38} Johann Jacob Manget, \textit{Bibliotheca Medica practica, sive rerum medicarum thesaurus cumulatissimus. Tome IV} (Geneva, 1695), 444.
\textsuperscript{39} Biographical information in Jonas Graetzer, \textit{Lebensbilder hervorragender schlesischer Aerzte aus den letzten vier Jahrhunderten} (Breslau, 1889), 74.
\textsuperscript{40} For this and related genres, see Volker Hess, and Sabine Schlegelmilch, "Praxistagebücher als Quelle und Aufschreibesystem," in Martin Dinges, Kay Jankrift, Michael Stolberg and Sabine Schlegelmilch, eds., \textit{In the Doctor’s Office. Medical Practice in 17th- to 19th-Century Europe} (Amsterdam, 2013).
other developed an anthrax lesion on a finger and, following further illness, recovered completely two months later. This sequence of stories reached its dramatic climax in Hahn’s own case history and happy recovery, an observatio which this medical officer and Leopoldina member spun out over three pages of painstaking, painful self-observation.

No trace of this narrative and drama remains in Sauvages’ version. He did not excerpt the case histories as observationes. He excerpted from them – according to the algorithm we have reconstructed in Table 2. Italics indicate characteristics that Sauvages excluded when excerpting, because they occurred only in some of the cases. Capital letters indicate the constant shared distinguishing characteristics, boldface the merely frequent or recurrent ones, which Sauvages compressed into what contemporaries called an observation générale.41 Thus Hahn’s 12-page report was not only reduced to two pages. It was also transformed – in three ways. First, Sauvages converted narrative order to serial order; second, he transformed ten individual histories into a timeless historia; and third, he established a clearly defined place in the classificatory system for the nameless horror in Breslau that had cost 3,000 lives: “This illness consists in an acute, severe fièvre lipyrie” (1772, Vol. 2: 578). As exemplary case, Sauvages did preserve something from Hahn’s detailed narrative account of his own illness: namely, a table of extracted keywords from Day 1 to Day 48:

1. die accessus febrilis vehemens, [...] 
Die 3. dolores sedebantur; nox pessima. 
Die 4. omnia pejus habuere [...] 
48. desquamatio cutis, unguium lapsus. (1763, Vol. 2: 295 f.)

Through this threefold transformation, a “déscription d’une épidémie,” became Tritaeophia vratislaviensis, a species distinguished from other fevers by a characteristic chronology in the combination of fever and general weakness (see Tab. 2, entries in capital letters).42 The two sets of characteristics – the shared and the distinctive – together reduce Hahn’s collection of cases to what other generalising physician-observers in the eighteenth century called a précis of just


42 Johann Gottfried Hahn, “Description d’une Epidémie qui a régné il y a quelques années à Brewflaw,” *Recueil périodique d’Observations de Médecine, Chirurgie, Pharmacie*, 7 (1757), 452–63, 452.
**Table 2** Disease appearances noted during the Breslau epidemic: Hahn 1757 and Sauvages 1763

<table>
<thead>
<tr>
<th>Case 1</th>
<th>Case 2</th>
<th>Case 3</th>
<th>Case 4</th>
<th>Case 5</th>
<th>Case 6</th>
<th>Case 7</th>
<th>Case 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-year-old workman</td>
<td>30-year-old virgin</td>
<td>Two women</td>
<td>27-year-old woman</td>
<td>40-year-old man</td>
<td>46-year-old woman</td>
<td>30-year-old woman</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Symptoms</th>
<th>Symptoms</th>
<th>Symptoms</th>
<th>Symptoms</th>
<th>Symptoms</th>
<th>Symptoms</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Febris continua</td>
<td>Febris continua</td>
<td>Fully healthy, then same symptoms</td>
<td>Joint pains</td>
<td>Fever</td>
<td>Saw (female) friend die of the disease.</td>
<td>Skin rash resembling anthrax</td>
<td></td>
</tr>
<tr>
<td>General weakness</td>
<td>GENERAL weakness</td>
<td>Indescribable weakness</td>
<td>Bilious vomiting</td>
<td>Bilious vomiting</td>
<td>EXHAUSTION WITH anthrax</td>
<td>Shivering and nausea</td>
<td></td>
</tr>
<tr>
<td>Headache</td>
<td>Headache</td>
<td>OVERWELMING HEAT</td>
<td>Very severe abdominal pain and headache</td>
<td>Menstruation</td>
<td>Nocturnal restlessness</td>
<td>Bitter taste</td>
<td></td>
</tr>
<tr>
<td>Angina pectoris</td>
<td></td>
<td>(“I’m being burnt alive”)</td>
<td>Bilious vomiting</td>
<td>Menstruation</td>
<td></td>
<td>Bitter taste</td>
<td></td>
</tr>
<tr>
<td>Bilious diarrhoea</td>
<td></td>
<td></td>
<td>Very severe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insomnia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delirium</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onset of menstruation</td>
<td>3rd day</td>
<td>2nd day</td>
<td>2nd day</td>
<td>3rd day</td>
<td>3rd day</td>
<td>5th day</td>
<td></td>
</tr>
<tr>
<td>3rd day facial erysipelas</td>
<td>2nd day anthrax</td>
<td>2nd day dark urine</td>
<td>2nd day</td>
<td>3rd day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TORMENTING THIRST</td>
<td>lesion on finger</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bilious vomiting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTERNAL HEAT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dry tongue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restlessness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Death after convulsions</td>
<td>Death</td>
<td>Cured after two months</td>
<td>Death: unusual rapid chilling of cadaver</td>
<td>Dies with agonising headaches and abdominal pain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd day ulcerating growth</td>
<td>4th day: ENORMOUS EVACUATIONS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Death</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Died wholly gangrenous</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
“general weakness, headache and heart region pain, serous bilious diarrhoea, insomnia, disorientation amounting to madness and accompanied by severe anxiety; on the next day, tormenting thirst, vomiting and bilious diarrhoea ... epileptic death.”

Nothing could differ more vividly from earlier excerpting practice than this form of generalisation. Where compilers of observationes like Johannes Schenck von Grafenberg (1530–1598) or Théophile Bonet (1620–1689) would not have passed up the chance to excerpt several case histories from Hahn's epidemic account and fit them into their collections, Sauvages's excerpting abstracted from the individual historia to an Histoire générale. While he only used this term explicitly for defining what a 'class' was (1772, Vol. 2: 274), the same writing technique could make a class, a species, an annual constitution, all of them generalizations from accumulated observationes, novel constructions made using that old humanist technique, excerpting. With this paper-technological shift came a shift in what was most valued in written representation of disease. In the hands of earlier humanist physicians, in the sixteenth century, historia had become synonymous with observatio, that is, with particulars minutely described and presented for their exemplarity or to document variety.

Now, with no wholly new technique, historia separated from observatio, and variety and exemplarity yielded to generality. Obscure provincial physicians practiced this same form of generalising by excerpting and tabulating in the eighteenth century: they and the celebrated Boissier de Sauvages, their disease constitutions and his disease species, a ‘catarrhal and bilious’ constitution for the year 1785 and a Tritaeophilia vratislaviensis, belonged to the same new age of old scholarly practice.

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45 Mendelsohn, “Observation.”
From *Historia* to Classification

Like naturalists and physicians before him, Sauvages trawled the literature and combed through collections, though, as his *Livre de raison* shows, favouring the more recent publications. The sequence of entries in this 400-page notebook documents Sauvages’ reading and thinking over time, from 1745 to 1765. To reconstruct this process, we correlated notebook entries with successive published versions of his new classification of disease.

To begin from a first interim conclusion established above, the *Nouvelles classes* of 1731 did not serve as a commonplace book for entering new material from reading and observation. The non-topical order of the *Livre de raison* tells us this. What the *Classes* did provide was a grid of generalising terms: the dual nomenclature that combined genus terminology borrowed from Tournefort’s *Institutiones* and species-differentiating terms derived from Sauvages’ reading and comparing activity. Thus, for example, Sauvages based the definition of regularly recurring ‘simple’ fever (*Quotidiana simplex*) on a classical description by Sydenham and differentiated variants from it, such as quotidian fever with gradual onset, from the *Curationes* of Wolfgang Gabelkover (*Febris subintrans*); the double quotidian fever, a rare form described by Daniel Sennert (1572–1637); or a still rarer threefold form. Sauvages found this latter condition in a treatise on fevers by James Primrose (d. 1659) and added it to his list but, doubting it constituted a category in the system, marked it ‘imaginary’ (1731: 38, ‘est imaginée’). In this way Sauvages succeeded in identifying and defining a total of 13 fever species of the genus *Quotidiana* (1731: 36–39). One might easily assume this meant the terminological grid was complete. Far from it: with these steps, work on the system had only just begun!

Table 3 gives only an inkling of the labour devoted by Sauvages over the course of subsequent editions to progressive revision and refinement of this compilation of knowledge, pruning, reformulating, reassembling. The process of transforming classical descriptions à la Sennert, Primrose and Gabelkover...
into systematic categories (*duplex*, *deceptiva*) is sometimes difficult to follow, as in the example presented below of *Febris subcontinua malignans*. While the two following editions of 1739 (p. 112) and 1752 (p. 213) contain no information on the species within each genus, species are reintroduced in *Pathologia methodica*, albeit in tabulated form (1759: 261 f.). These later editions clearly illustrate the systematising process. In each successive edition, species were eliminated – two, three or more. Thus in 1759, for example, the forms of *Complicata* featured in 1731 are omitted, because, as Sauvages noted in a later edition (1763: Vol. 2: 314), they now belonged to *Quotidiana duplex*.

Thus the difference machine of textual work clustered kinds. As a definition became more general, edition by edition, it subsumed ever more *observationes*. Still, this process was more patchwork than linear, as Table 3 shows. Sauvages criticised humanist ordering but did not escape the curse of humanist reading and collecting.49 Updating and expanding the empirical scope of his classification system meant coping with ever more information. *Observationes* that were found and excerpted for the *Quotidiana* genus after 1759, to stay with our example, yielded the species *Quotidiana soporosa*, *catarrhalis*, *partialis* and *stranguriosa* in the *Nosologia* of 1763 (Vol. 2: 317 f.). As always, however, species were provisional, since each category in the system depended on its neighbours and indeed on the totality, thus on ever new readings. Of these four new *Quotidiana* species in 1763, one was deleted in the next edition and three were question-marked for later textual criticism (1772, Vol. 2: 620 f.).

Ever more *observationes* thus did not mean ever more species. Where Linnaeus increased the number of genera and species in each successive edition of the *Systema naturae*,50 the *Nosologie méthodique* of 1772 did not list many more species than the *Nouvelles classes* of 1731. The work did grow steadily, almost exponentially, to a shelf-filling ten volumes of over 500 pages each, as the species descriptions expanded from terse entries of no more than three lines to monograph-like disquisitions into which flowed all the data on course of disease, disposition and complications, treatment and possible secondary ailments which Sauvages had amassed over the years – an ‘overload’ of information that was, thanks to an evolving application of humanist textual method, in fact no overload.51

49 Blair, *Managing*.

50 In 1733 Linnaeus could boast that he had reduced the number of plant species to 800, but in the 12th edition of *Systema naturae* (1766–1768) he was to list about 7,700 plant species as well as 6,200 animal and 500 mineral species (Felix Bryk, “Linné und die Species Plantarum,” *Taxon*, 2 (1953), 63–73).

51 For persuasive critique of the much-invoked ‘information overload’ argument, see Lars Behrisch, “Zu viel Information! Die Aggregierung des Wissens in der Frühen Neuzeit,” in
### Table 3
The disease species of the genus Quotidiana (daily intermittent fever) in the Nouvelles classes and subsequent editions

<table>
<thead>
<tr>
<th>Edition</th>
<th>1732</th>
<th>1759</th>
<th>1763</th>
<th>1772</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quotidiana total species</td>
<td>12</td>
<td>10</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Newly included species</td>
<td>3</td>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- simplex
- hysterico-hypochondria
- subintrans
- maligna aut spasmodici
- triplex
- syncopalis
- scorbutica
- duplex
- maligna epiala
- quartana complicata
- tertiana complicata
- particularis Brachii

- nephralgica
- cephalalgica
- vomitoria
- epileptica
- deceptiva
- ischiadica
- soporosa
- catarrhalis
- partialis
- stranguriosa

- nephralgica
- cephalalgica
- cephalalgica
- céphalagica
- epileptica
- deceptiva (subcontinua)
- ischiadica
- soporosa?
- catarrhalis
- partialis?
- compliquée / stranguriosa
Sauvages the critic of humanist ordering of knowledge did not renounce the paper techniques of humanist textual method. He used them to different effect. Collecting case histories acquired a new purpose and meaning. The purpose of endlessly trawling the literature was no longer to accumulate as many observations as possible, but to order the experience they contained. And ordering did not mean putting each observatio in the appropriate compartment of an excerpting cabinet as one placed a rare beetle or valuable mineral in a cabinet of naturalia.\footnote{Meinel, ‘Aporien der Empirie’; Anke te Heesen, “Boxes in Nature,” Studies in History and Philosophy of Science, 31 (2000), 381–403.} It meant creating the appropriate compartment in the first place, by comparing observed characteristics in the process described above. Thus beetle and box – to stay in metaphor – remained in perpetual exchange of meaning. Were the appropriate place found for a new observatio, did the box for this beetle already exist, then the beetle lost interest as a collection piece. Such a case history would at most be cited as further substantiation.\footnote{In his publications, Sauvages seldom refers to individual case histories as observationes. Though we have not counted them, these seem drawn primarily from his own practice.} For example, cases like Gabelkover’s which had first yielded the aforementioned category “quotidian fever with gradual onset,” one of several fever species eliminated from Sauvages’s classification after 1759, were subsumed in a new species of ‘deceptive’ intermittent fever (Quotidiana deceptiva) that Sauvages based on cases collected by Francesco Torti (1658–1741) together with the Febris intrans Auctorum (“of various authors”; see Tab. 3). Yet while the new species Quotidiana deceptiva, introduced in 1763, thereby embraced two existing fever designations, it also generated within itself a new possible differentiation. Sauvages found “l’intermission & le type très obscurs” and opened the question of demarcation from the double tertian fever of the malignant variety (febris subcontinua malignans).\footnote{Sauvages, Nosologie méthodique, vol. 2, 617; Francesco Torti documented his treatment of the malignant fevers with numerous ‘historiae mirabiles’, among them a series of observations under the heading ‘subcontinua malignans’. He also designated these a particularly malignant form of ‘Intermittens tertiana duplex’ because of the fever’s daily yet irregularly timed recurrence (Francesco Torti, Therapeutice specialis ad febres periodicas peri-}
Notice that, in tracing these processes, we have been able to refer as much to Sauvages's books as to his notebook. Printed form was not uniform and final form. This point may recall the work of Adrian Johns and others, who have challenged the idea that putting knowledge into print disambiguated meaning and stabilised scientific knowledge. Yet our point is a different one. Successive published books functioned like notebooks. They advanced an epistemic process. This meant much more than the familiar phenomenon of the 'revised edition' of a work: for as we saw, none of the intermediary 'editions' comprised the whole of what had appeared in the Nouvelles Classes of 1731 nor of what would ultimately appear in the Nosologie of 1772; one version, that of 1759, even consisted mainly of lists. Nor did Sauvages's book-as-notebook partake of a technique widespread in the early eighteenth century and adopted by Linnaeus, who had his personal working copy of each edition of the Systema naturae bound with interleaved blank pages, thus providing organised space for annotating and expanding his classification. With Sauvages, by contrast, the printed book itself recorded an interim state and served as a tool in the cyclical and critical process of adding and eliminating categories.

These three elements – reduction of mass of particulars by generalisation, indexing as category work, and the use of print to order and display one stage of an ongoing process of knowledge – differentiate Sauvages' paper technology from humanist textual method. Compared to the encyclopaedic labours of physician-naturalist Ulisse Aldrovandi (1522–1605), whose thousands of excerpts began as slips stuffed into sacks, Sauvages use of bound volumes, written and printed upon, seems less flexible. In fact it was more so, over time, and more effectively so. Aldrovandi's team of scribes, sacks of slips, dozens of thick folio excerpting volumes of high-quality paper on which slips could be affixed, removed, and elsewhere affixed using special adhesive failed to realise his goal.

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of putting nature, alphabetically ordered, into print. In contrast, Sauvages’s classification system, freed from the fixities of temporarily glued or even die-cast order, proved it could cope with the accelerating growth of recorded medical experience.

From Fact to Species, 1550/1750

How François Boissier de Sauvages worked tells us something about the historical changes of which his work was a part. This concluding section steps back to identify those changes, how they happened, and what they meant.

Beetles mutated into boxes, observationes into species, defined also by all others. So far we showed how this magic worked on paper. But what thereby became of the epistemic and empirical status of beetle and box? What is the status of the objects of nosology? Big histories, ways we understand the making of modern knowledge, are at stake in this seemingly esoteric question.

The first history at stake here is a standard narrative of transition to modern medicine. Species and specificity, in knowledge and intervention, have long been seen as the crucial demarcator of modern from pre-modern medicine. Dis-ease became diseases. Pre-modern medicine’s individual patients gave way to the specific diseases of modern medicine. Illness could now be understood and treated ‘ontologically’, that is, as disease entities, rather than ‘physiologically’, as individually variable deviation – or imbalance – of organic function. The rise of nosological classification in the eighteenth century usually counts as the first major phase of this transformation, which continued through pathological anatomy, bacteriology, genetics. Was it?

The second history implicated here is a new narrative of science and of the modern ‘fact’. Scholarly and specifically humanist activity is now central to accounts that once featured leaving the library. Disease description is now seen as central to the renaissance of empirical knowledge in the 16th and 17th centuries; the medical observation, as a new epistemic genre prototypical of

58 See note 24, above.
written observation of the natural world and its associated values and virtues.⁶⁰ Our new look at what physicians did with observationes in the subsequent period opens up the question of whether scholarly empiricism ended with the end of humanism – or ever ended.

The Genesis of Classification out of Humanist Methods

Generalisation replaced collection. Category work replaced accumulation. Provisionality replaced permanence. In these ways, Sauvages’ system of reading and writing represents the superseding of humanist historia by a disease classification system. As this prominent example shows, this historical process was less influenced by botany than emergent from the development of a paper technology. The humanist paper practice that had made observationes now, differently applied, made species. Sauvages thus belonged far more to the humanist tradition than has been hitherto perceived. The ten-volume nosology can be considered not so much a result of the decline of humanist note-taking and bibliography as its crowning achievement: a systematic ordering of medical knowledge, constructed over a lifetime of reading and excerpting.

Unlike topical compilation of disease observations since the sixteenth century, classification was a process not only of collecting and sorting. It was a process of category work, of refurnishing the world of disease – on paper. Yet the paper techniques for doing this were continuous with those used by the earlier compilers of disease observations. Sauvages broke with some aspects of humanist method, notably commonplacing. He continued to use other aspects, notably excerpting. Thus classification as it arose in the eighteenth century – in medicine and, further research may confirm, in natural history – was not a novel enterprise, but an incomplete break with and intensified practice of a past way of ordering the described world. Despite the new sciences, despite transformations of physiology, chemistry, physics, botany, classification broke only partially with humanist method, a finding that reopens the question of the end of humanism.

The dynamics of that incomplete break can be seen in Sauvages surviving large notebook Livre de raison. Taking notes and taking note in the Renaissance, in both reading and observing, typically took the form of composing loci communes.⁶¹ This is what made practices of copying and ordering specifically

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humanist. More than a technique, commonplacing or excerpting into *loci* or *topoi* was the common material basis of humanist knowledge. Sauvages’ *Livre de raison* deserves a concluding last look in this light. For this book of excerpts and notes was, as we showed, no commonplace book. Sauvages could have organized it according to the ‘nouvelles classes,’ orders, and genera. That he did not is made more meaningful by the fact that most of the entries are second or third hand. Sauvages copied laboriously into his notebook from rougher notes.62 Yet he neither reorganized them, nor wrote them in no particular order as in the notebook genre *adversaria*.63 He preserved them in the chronological order in which they had been taken. That, we think, is the point. Chronological order did work, in both a positive and a negative sense. It enacted the renunciation of commonplacing. That this renunciative act was carried out on 400-plus pages over 30 years suggests it was important, perhaps necessary to the coming into being of a new programme of knowing by ordering. The notebook’s ‘pot-pourri’ was a way of breaking with the topical order of earlier physicians’ humanistic commonplace books of disease observation while sustaining the paper practices those earlier physicians – and Sauvages himself as a student – had used to order disease. As to the positive function of the notebook’s chronological order, it documented observations, descriptions, reasonings, lists in the ongoing sequence of their production.64 While it did not sort the notes taken, it did preserve the order of the taking note. Time, not space, was the living dimension of this paper technology of conceptual work: not categories laid out on the page, but category work documented, whittling at the shapes of genera, orders, species.

**Species on Paper**

Instead of asking, philosophically, whether classification ontologized disease and, if so, what a disease species actually was and is, we can ask historically:

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62 General evidence for this is that the entries in *Livre de raison* are written mainly in fair hand. Specific evidence can be found, for example, in a section of the notebook headed ‘Histoire des mauvais fievres’ (*Livre de raison*: 21 f. (ADH, 10 F 51)), a collection of case histories dating from the period 1742–1761 and drawn from Sauvages’ own clinical practice. These pages show a rare use by Sauvages of *loci communes* order and strongly suggest that he kept a rougher medical diary.

63 Stolberg, ‘Loci communes.’

64 Christoph Hoffmann, ‘Schreiben als Verfahren der Forschung,’ in Michael Gamper, ed., *Experiment und Literatur: Themen, Methoden, Theorien* (Göttingen, 2010), 181–207.
What was it like to be an entry in the nosology? – especially in relation to the written stock of medical observation, already vast and growing fast in Sauvages’ time.

To answer this question, let us return one last time to the objects of Sauvages’ written work. Recall the ‘acute leipyria fever’ – fever of the innards – which raged in Breslau in 1759 and which we used above to show how Sauvages constructed, out of individual case histories, the general historia of a species. In trawling the literature, Sauvages sorted references to cases of fever by difference in rhythm. When the fever varied in intensity over the course of a day, the reference was entered under the genus remittent fevers; when the fever vanished completely before reappearing, it was entered under the intermittent genus. So what did Sauvages do with observationes he identified as leipyria from disease compilations like Manget’s Bibliotheca (1698) and Bonet’s Sepulchretum (1700)? For these excerpts, he opened a leipyria box under the remittent genus. But among the observationes collected in Bonet, he also found a reference to a consilium by Guillaume Baillou, edited by Jacques Thévar (1600–1674?), in which leipyria alternated with ‘cholera’ (bilious vomiting and diarrhoea). This was not remitting, but intermittent leipyria. So for this excerpt that did not fit with the others, Sauvages opened a second ‘leipyria’ box, under the genus intermittent.

‘Tertiana leypiria abutero inflammato. Jac. Thevart. Sepulchret. tom. 3. p. 212’: that is the entire entry.65 Here, again, was the difference between classification and humanist collecting: where Bonet and other compilers duplicated observationes so that their various features could be sorted into different topoi, Sauvages duplicated topoi, like ‘leipyria.’ By making the reference trail a box, Sauvages...

65 François Boissier de la Croix Sauvages, Nouvelles Classes de Maladies, qui dans un ordre semblable à celui de Botanistes, comprennent les Especes & les Genres de toutes les Maladies, avec leurs Signes & leurs Indications (Avignon, 1731), 43 and 66–67; François Boissier de la Croix Sauvages, Pathologia methodica, seu de cognoscendi morbis (Lyon, 1759), 260 and 262; Johann Jacob Manget, Bibliotheca Medico-Practica sive rerum medicarum Thesaurus Cumulatissimus quo omnes prorsus humani corporis Morbosae Affectiones. Tam Artem Medicam in Gener, Tam Chirurgicam in Specie, spectantes Ordine Alphabeticco Explicantur et per Curationes, Consilia, Observationes, ac Cadaverum Anatomicas Inspectiones, tam hinc inde proprias, quam a variis, isque praestantissimis Authoribus, Veteribus, & Recentioribus petitas, abunde ino & curiose tractantur, Vol. Tomus Secundus (Geneva, 1698), 443; Théophile Bonet, Sepulchretum sive anatonia practica ex cadaveribus morbo denatis proponens historias et observationes omnium humani corporis affectum, ipsorum; causas reconditas revelans. Que nomine, tam pathologiae genuinae, quam nosocomiae orthodoxae fundatrix, ino medicinae veteris ac nove promptuarum, dici meretur (Lyon, 1700), 3/4, sect. 1, obs. 66, 206–212; Guillaume de Baillou, Epidemiorum et ephemeridum libri duo (Paris, 1649), 1v, 228–231.
was treating observationes found in the literature – excerpts on paper – like natural objects, like beetles.66

Yet contrary to the old pre-set order, the old cabinet of humanist compiling, in the new nosology, the collected object and the box containing it were mutually constitutive. We can see this in what happened when Sauvages read about the Breslau epidemic. He could not simply find a place – locus, topos – for it and move on. Deciding that this previously unknown acute leipyria fever was a separate species and introducing a box for it (Tritaeophia vratislaviensis) necessarily entailed reconsidering the other leipyria boxes, reassessing what defined each.

The results were dramatic. The leipyria references to Manget and Bonet dropped out of the system. So did the reference to Baillou’s consilium edited by Thévart. Where they had been the placeholders in the nosology of 1759, none of them appear in the 1763 edition. But the boxes in which these two groups of observationes had been kept did not have the same fate. For remittent leipyria, as we are about to see, Sauvages now found a better exemplary observatio, in Pieter van Foreest’s collection, a better beetle for the box. So remittent leipyria remained as a species. For intermittent leipyria, he didn’t. So that box did not survive this revision cycle. The entry referring to Thévart could not be filled with more literature. Intermittent leipyrarian fever no longer existed for readers of the nosology of 1763. What this shows is that the relationship between category and disease was reversed. In 1731, boxes were constructed from beetles, species from reading observationes. Now it was the boxes that recast excerpts from the old world of collected observationes as species exempla. Thus sharpened by this category work, Tritaeophia leipyria was filled in 1763 with new readings from Galen, Petrus Gorraeus, Aetius and Pieter van Foreest.67 The fact that reference after reference was found to fit the box justified its existence – not by theory or reasoned argument, but by repeated reading and citing, good humanist library work: indeed, library empiricism.

This reversal – from object preceding its classification to object defined and substantiated by its classification – took place in the library. The long list of authors on leipyria, from Avicenna to Valcaringhi, leaves no doubt that it was the result of an intensive process of reading, excerpting, and rewriting. However, if one follows up Sauvages’ references, the cited literature rapidly boils down to a single source, namely Pieter van Foreest (1521–1597). Towards the end of the sixteenth century, this Delft town doctor, hailed as a Dutch Hippocrates, had amassed a vast collection of observationes – including the case history of a fatal

leipryia fever. This case history contains most of the authors and references subsequently cited by Sauvages.68

Beyond giving insight into how Sauvages worked, Foreest’s observatio is fascinating for other reasons. His case collection is considered to be a milestone in the development of medical case histories into an epistemic genre, a development manifest in the form of his leipryia observatio.69 Foreest begins with an impressively detailed chronological history of a 26-year-old Delft servant girl. The narrative, more than five pages long, is followed, after a heading, by a three-page scholion in which the received academic opinions are presented, compared, and discussed with reference to Foreest’s own observations.

This way of arranging observatio and scholion was new. It characterises the empiricism of Renaissance medicine. Previously, empirical observation had always been preceded by and thus subordinated to theoretical discussion. Observation did little more than confirm. Foreest and slightly earlier doctors like Amato Lusitano (1511–1568) were the first to take the momentous step of turning the old order on its head, so that scholarship no longer took priority over case history, theory over practice, received over experiential knowledge. They placed the case history before the scholion, thus reducing – in the layout of the page – the erudite discussions by traditional authorities from primary knowledge to commentary.70 This inversion not only shifted attention from book to bedside, but also rearranged the book. In this process, the observatio provided both the narrative format and the coherence and currency of the new knowledge. For this genre did not simply contain and transmit the empirical facts. It presented factual knowledge as observatio.71

And what did Sauvages do with this innovation? With humanist empiricism? He stood it, for a second time, on its head. In Sauvages’ entry on leipryia, Foreest’s many-paged observatio shrinks to nine lines, loses all particulars, and becomes a general definition: “This is a variety of Tritaeophia causonis seu ardentis, in which the extremities are cold whereas heat invades the interior of the body...”72 Only the reference “as in the case from Foreest” still marked this species definition and general historia as derived by excerpting from case histories, of which Foreest’s was exemplary. The rest of Sauvages’ account reads

68 Pieter van Foreest, Observationum et curationum medicinalium de febribus ephemeris et continuis libri duo (Antwerp, 1584), 291–299, obs. 36.
69 Pomata, “Observation Rising.”
70 Pomata, “Sharing Cases.”
like a learned disputation. Textbook opinions of *auctoritas* – from Avicenna to Baglivi to Valcaringhi – are judged against the definition of leipyria. Sauvages leaves it until the final paragraph to report briefly from his own observations.

Where Amato, Foreest, and the other Renaissance physician-scholars had marginalised received knowledge, pushing it to the fringe of the *observatio*, Sauvage reversed this reversal and thereby redefined ‘learned’ or ‘received’ knowledge as generalization from empirical observation. Sauvages’ own observation was neither privileged nor additive, but a prompt to comment on the epistemic status of species. All that the literature had to offer, he criticized, was singular case histories, which might represent varieties, but no species as such. Yet this, he maintained, did not cast doubt on the method. Many individual illnesses in a genus were alike in type, course, termination, and symptoms. Thus, to medicine’s benefit, they could be described (describi) as species.

The oft-posed question of the ontological status of disease, which has bedeviled medicine for some two centuries, hardly arose for Sauvages and his contemporaries, even though they began to classify disease into species, genera and orders. Rather than an ontologization of disease, the historically decisive shift was the emergent work process of reading and writing by which constructed category and collected object came to determine each other reciprocally. It can thus be said that the species of a disease is no more than the practice of an art of writing – and no less, the product of a *techne*. And each is potentially a never-ending production, unlike the permanence of humanist *historia*. Nosology was not merely order. It set order in motion. The future of classification would thus look much like the life’s work of Boissier de Sauvages: an endless cycle of revision and editions.73

‘Describing’ species: Sauvages’ locution tells of a second aspect of historical change. The art and science of describing had been of natural *particulars*, of particular *historia*.74 Species were not particulars, but they were describable. What humanist method in medicine accomplished in the eighteenth century was to move empiricism beyond its own Renaissance project of the particular, the fact, the *historia*, the *observatio*, yet to do so without landing in ‘theory.’ The wonder of classification is that it was neither: fact nor theory (in knowledge form not knowledge claim), but observation itself, multiplied, generalized, those generalizations then grouped and differentiated. Thus a new empiricism of generalizations (species, disease constitutions), we suggest, arose out of an

73 With one difference: in disease classifications in the 20th and 21st centuries, the number of diseases and ‘disorders’ increases enormously from one edition to the next.
74 Ogilvie, *Describing*; Grafton and Siraisi, *Particulars.*
older one of particulars (observations, facts, case histories). We have shown how this happened through the rewriting – not the replacement – of the canon of disease knowledge since antiquity and its reordering on the printed page. The empiricism of generalizations is usually hidden by assumptions that oppose empirical and rational, fact and theory, and recognize little else. Its methods, motive forces, uses, culture, and economy – material and moral – await, for this reason, fuller description.

75 Mendelsohn, “Observation in the Eighteenth Century.”