



Urology and nephrology: etymology of the terms

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Received: 28 November 2020 / Accepted: 15 December 2020 / Published online: 6 January 2021
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Abstract

Earlier than has been thought, multiple seventeenth- and eighteenth-century authors used the term *urologia*, perhaps independently, to cover the established science of “the urines”. Two early eighteenth-century authors, Schurig and Fezer, seemingly prepared manuscripts, both most probably lost, with the term in the very title. Mid-nineteenth-century uses reflected growing, especially Anglophone, interest in microscopic urinalysis. Only toward the end of the nineteenth century did *urology* take on the sense of *genito-urinary medicine and surgery*. This expanded sense of *urology* may be dated back to 1896, specifically the naming of the *Association française d’urologie*.

Keywords History of urology · Medical history · Medical lexicography · Urology (term) · Nephrology (term)

Introduction

Who coined *urology* and *nephrology*? The etymology of the neoclassical terms has received little attention beyond a prevailing suggestion that the former would be coined by Jean-Jacques-Joseph Leroy-d’Étiolles (1798–1860), known for his 1845 textbook, *Urologie. Des Angusties ou rétrécissements de l’urètre et de leur traitement rationnel* (A Treatise on Contractions or Strictures of the Urethra, and of their rational Treatment) [1]. Leroy-d’Étiolles notably uses the titular term only twice in the entire 488-page work, and does not define or attribute it. He does notably nominate Naples physician-anatomist Alfonso Ferri (1515–1595) as *père des chirurgiens urologues*. The term is considerably older than 1845, in any case. Schultze-Seemann [2] and Konert [3, 4] highlighted formal use of *urologia* by Johann Juncker (1679–1759) in 1736, in a chapter on urine (*De urina*) which defined it and distinguished it from *uroscopia* (*urinoscopia*, *urinæ inspectio*, or more inclusively *inspectio & physica inquisitio & analysis urinæ*) and *uromantia/ouromantia* (*urinomantia*, *urocrisia*, *urocrisis*, *divinatio per urinam*: diagnosis, or divination, based on the inspection of urine) [5]. But the compound (GR οὐρον + λόγια), which in Juncker’s work came with due circumspection regarding the

neo-Greek, had been in earlier use still. This minor question of the terms’ early naming illustrates how urology was only gradually expanded beyond the early modern medical prominence of uroscopy and uromantia [6]. As an historian of the discipline observed in 1936: “the word urology is clearly indicative that the entire modern development of this branch of science, with its complicated methods and remarkable achievements, derives in the last analysis from the simple uroscopy as we find it practiced in the most remote periods by physicians of all peoples” [7].

The medical identity of “the science of the urines” or “of urine” (*scientia urinarum*, *scientia de urinis*, *doctrina de urinis*) was an explicit concern already to medieval Montpellier professor of medicine Bernard de Gordon (fl. 1270–1330), as evidenced in a passage dedicated to the question in the “Tractatus de Vrinis” of his *Lilium medicinae*, first printed in 1480 [8]. A quite similar deliberation is found in the work on urine by his contemporary, Byzantine physician Johannes Zacharias Actuarius (c.1275–c.1328), printed in 1541 [9]. Integral to early modern medical symptomatology (*medicinae semiotica*), uromantia was an already tentatively subdivided discipline by the early seventeenth century. The phrase *urocriterium chymiatricum* expressed an aspiration to a chemically sophisticated “Judgment upon Urine” in 1614 [10], over a century before Boerhaave isolated urea (well in anticipation of Hilaire Marin Rouelle, who has often been credited with the feat). One at the same time encounters curious mystical outlines for a *ouromantia iatromathematica*, or astrological uromancy, beyond mere *ouromantia*

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physiologica [11]. A nineteenth-century science historian explains: “Imagine a vast system of vaticination based upon the observation of οὔρον [urine] under various stellar and other conditions. Can anything be more infinitely pitiful than this? Did any act attributed to the Laputan philosophers [from *Gulliver’s Travels*] exceed this for folly?” [12]

Urological sections in works before the nineteenth century were commonly entitled *De urina* (in English *Of the Urine* or *On Urine*), just as contributions to *psychologia* before the sixteenth century carried the title *De anima*, and to *neurologia* before the seventeenth century, *De nervis*. But *urology* was seemingly of some general use already in the seventeenth century. In the 1622 medical dissertation of Friedrich von Monau/Fridericus Monavius, presented in Tübingen, the adjective *urologica* appears on page 76 [13]. *Urologia* reappears in a work with a publication date of July 29, 1669, by Jakob Stelzlin (d.1677) entitled *Positiones et quaestiones ex universa medicina*, specifically a short capita selecta from the science of urine, entitled, “Ex Urologia seu Tractatu de Vrina in genera” [14]. Born in Inningen in Swabia (Bavaria), Stelzlin was a professor of medicine at Ingolstadt between 1645 and his death, and wrote a number of surveys of medical knowledge in the 1660 s. Confirming its place in medieval through early modern medicine, the *urology* section was wedged in between one on *semiotics* (general symptomatology) and another on *sphigmologia* (an established medical term denoting the study of the pulse).

An unpaginated bachelor dissertation “on the urines” defended 22 of December 1674 by one Johann Nicolaus Knöckelman was entitled *Disputatio urologica*; the term *Urologia* appears in the opening sentence of its preface defending the eponymous science of urine (the dating is hampered by the text missing its year of publication) [15]. The *praeses* was professor of practical medicine at the University of Vienna Paul de Sorbait (1624–1691). I note this because the phrase *medico urologo* is found 4 years later in work by De Sorbait, in a section followed by another on *sphigmologia* [16]. He elsewhere uses the expression “urological controversies” (controversias urologicas), referring to urinal symptoms [17].

Incidental uses of “urology” such as these are multiple during the second half of the century, mostly by people not known for their contributions to urology: once, in a 1674 work by personal doctor of multiple Kaisers, Nicolaus Wilhelm Beckers (c.1630–1705), and again once in a medical textbook by Michael Hertel [18, 19]. Anatomist Sebastian Christian von Zeidler (1616–1686) also uses the term once (138), in a section on urine, and as a synonym for *uromantia* [20]. Berlin professor of medicine Michael Alberti (1682–1757) used the term *urologia* once as well, in a section on uroscopy and uromantia [21].

The term notably reappears in no less than four works by Martin Schurig [22–25]. Schurig (1656–1733) is known

for various “medico-historical” tomes carrying neologic titles, including those on general and developmental gynecology (he coined *gynæcologia* and *parthenologia* for the respective occasions) and uro-andrology (*spermatologia*); he also coined *embryologia* and *sylllepsilogia* (the study of conception and pregnancy). Cited 1720 work dealt with various urogenital malformations. Cited 1744 work dealt with lithiasis; *urologia* here extended beyond urinal deviations to urolithiasis. In all four cited works Schurig was self-citing an apparent work in progress by the projected title of *Urologia, de Urina potus*. (*Urina potus*, the urine after drinking, was juxtaposed to other types including *urina sanguinis*, *urina cibis* and *urina chyli*.) This seems to refer to an unfinished, lost manuscript: the announcement, “cum Deo proditura”, came already in 1720 [22], albeit with a typo (as noted in the errata), but the unpaginated *index autorum* of Schurig’s posthumous *Lithologia* [25] still listed *Urologia* as an undated work. Schurig does not seem to have ever cited Stelzlin in published work, incidentally, and may have independently arrived at the term somewhere before or in 1720, with likely the same denotation as in Stelzlin.

Interestingly, a Bavarian physician in the first half of the eighteenth century publishing in the mid-1730s, one Johann Thomas Fezer, is reported to have also written a never published manuscript on urology, given as *Tractatus de Urologia* [26]. This, too, seems to be lost.

Onward, one encounters the term as a page header in a Dutch medical work by Theodor Jacob van Leenhof (1740) [27]. Comparable to Stelzlin, the pertinent section presents a general discussion on urine (Tractatus de urina) but also covers urogenital anatomy, and had *uromantia* for a clearly separate, continuing section heading (156–168). This urological section was appended to the second edition of this work, incidentally; the first of 1737 had not included it. Since this unreferenced and undefined usage postdates Juncker’s of 1736, it cannot be ruled out that the former took hints from the latter.

Despite cited early modern uses, the term *urology* was very rarely used until well into the second half of the nineteenth century (and then still mostly in French and German). As an unnamed author observed in 1911 apropos a French historical article on urology, in English “The term urology [...] has been in use extensively only within the past quarter of a century” [28]. Until Leroy-d’Étiolles’s work it survived mostly in medical dictionaries. Tarin’s 1753 anatomical dictionary [29] and derivative medical lexica [30, 31] had *ouronologie*, or *uronologia* in the advised neo-Latin. An unnamed book reviewer for the *Göttingische gelehrte Anzeigen* of July 23, 1753, corrected Tarin’s rendering to *vrologia* [32]. Laveaux, writing in 1828, likewise corrected the French term to “*ourologie*, and better *urologie*” [33]. Tarin coined many terms (including *cardialogie*, *cardiologie*); in his 1753 work *ouronographie* was part of

hydrographie (rectius: *hydrographie*, description of bodily humors and fluids) and *ouronologie* part of *hudrologie* (the scientific account of these). As such, *ouronologie* was awkwardly grouped with *hematologie*, *chylologie*, *choledologie*, *sialologie*, and so on, and had no connection to, say, *nephrologie*. The term still pertained strictly to *les urines*, then. Seemingly taking cues from this new French nomenclature, mid-eighteenth-century British lexica from 1753 had *ourol-ogy/ourologia* as “in medicine, a name given by authors to a treatise or discourse on the subject of urine” [34]. A later edition of this work had *ourology* as “method of judging of urine” [35]. In early nineteenth-century German lexica, one also sees the sporadic neologism *Harnlehre* (“the science of urine”) for French *ouronologie*. An 1829 medical-historical work examined the *Harhlehre* of Hippocrates, illustrating that this philological and dictionary term hardly captured a modern surgical discipline [36].

Leroy-d’Étiolles’s 1845 *Urologie* deals with urethral strictures, which definitely pushed the term beyond the science of urine. This scope expansion, however, was at odds with coeval uses. A 1841 French work on the “semiotics” (symptomatology) of urine in various diseases was appropriately called *Séméiotique des urines* [37]. A contemporaneous book review invoked *urologie* four times as a synonym, confirming that this term still only referred to the medical appraisal of *les urines* [38]. During the second half of the nineteenth century, one sees a growing tendency to more explicitly specify *urologie* in terms of the self-consciously modernizing *sémiologie urologique* (or *sémiologie urinaire*, *séméiographie urologique*, *science urologique*, *analyse urologique*, *diagnostic urologique*, *examen urologique*, *chimie urologique pratique*, *urologie clinique*), that is, urinalysis, as opposed to *chirurgie urologique* (or *chirurgie urinaire*, *chirurgie des voies urinaires*, *urologie chirurgicale*). The early “revue d’urologie” sections of the *Annales des maladies des organes génito-urinaires* (published as of 1883) illustratively served to set apart contributions to urinalysis.

An important date in this respect is the 1896 establishment of the *Association française d’urologie*, by *père d’urologie* surgeon-anatomist Jean Casimir Félix Guyon (1831–1920). *Urologie* here definitely broadened in scope, to today’s sense of urogenital medicine and surgery, though the extent to which Guyon himself can be credited for this is unclear. The two-volume third edition of Guyon’s *Leçons cliniques sur les maladies des voies urinaires* of 1894–96 did not invoke the term at all, which is also true for the fourth edition of 1903. In any case, as Article 2 of the Association’s statutes stipulated, its purview entailed “l’étude des affections de l’appareil urinaire dans les deux sexes” [39]. This broadened definition of *urology* was soon followed in Germany and the U.S.

For instance, in 1901 the *Vierteljahresbericht/ Monatsberichte über die Gesamtleistungen auf dem Gebiete der Krankheiten des Harn- und Sexualapparates* (published from 1896) was renamed *Monatsberichte für Urologie*. In 1906 the journal fused with the (*Internationales*) *Centralblatt für die Krankheiten der Harn- und Sexual-Organen* (published from 1889) to form the *Zeitschrift für Urologie*. The *American Journal of Urology*, published from October 1904, “treats exclusively all matters pertaining to the urinary organs in both sexes”, stated its maiden issue’s Editorial. In the inaugural volume, we also read that its patron, “The American Urological Association [founded in 1902] is an outgrowth of the New York Genitourinary Society, which was founded 5 years ago by the assistants in Dr. [Ramon] Guiteras’s clinic in the New York Post-Graduate Medical School”; it was renamed and “organized and modeled after the French Association” [40].

Unsurprisingly in light of this late, Francophone development, in the Anglophone literature from circa 1853, *urology*, or “Urological Science”, was still used strictly in reference to chemical and microscopic urinalysis. This increased usage reflected influential work on urinary deposits by nephrologist Golding Bird (1814–1854) published in 1844. The spelling notably defied coeval medical lexica: the 1855, twelfth, edition of Dunglison’s authoritative *Medical Lexicon* still had *uronology*, “the part of medicine that treats of the urine” [41]. Its 1857, “revised and very greatly enlarged”, edition added the spelling variant *urology* (reflecting increasingly common usage) but as late as 1868 only to cross-reference *uronology*. Dunglison also had *urolithologia*, incidentally, a term seemingly coined by Robert Willis in 1839 [42]. And dictionaries poorly kept up with developments circa 1900 as sketched. The sixth, 1915, edition of Gould’s *Pocket Medical Dictionary* still had *urinology/urology* as “the scientific study of the urine”, for instance.

Nephrologia was coined in 1709, in the title of a work on kidneys by Professor of Medicine in Rinteln Matthias Tiling/Tilling (1634–1685) posthumously reissued by Frankfurt physician and medical lexicographer Johann Helfrich Jüngken (1648–1726) [43]. Tiling’s work had originally been published in 1672 [44]. Jüngken’s neologism remained essentially unused until it was included (perhaps coined anew) in Tarin’s 1753 dictionary and, hence, in derivative French medical lexica [29–31], denoting an anatomical sub-discipline. The *OED* has the English cognate, *nephrology*, from 1833 as a dictionary term denoting a treatise on kidneys, and from 1890 as denoting the scientific study of kidneys. The term became common only in the second half of the twentieth century: until that time the term indeed survived virtually exclusively in medical biographies and lexica.

Compliance with ethical standards

Conflict of interest The author declares that they have no conflict of interest.

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