How to Create a Medical Knowledge: the Case of Georgius Baglivi (1668-1707)

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ABSTRACT:
Georgius Baglivi (1668-1707), Italian scientist of Ragusan origin, who worked as second physician to Pope Innocent XII and professor of anatomy and theoretical medicine at the College of Sapienza in Rome, was one of the first promotors of the fibre medical theory. Strongly influenced by Santorio Santorio's iatrophysics, Baglivi conceptualised and propagated a “third path” between humoral and solidist medicine which explained all physiological and pathological processes by the living properties of fibres. In addition to this, Baglivi advocated a (Neo)methodist theory which stated that life and health were determined by the physical balance of the active solids (fibres) and the more passive fluids of the body. Despite his distinguished institutional status and professional prestige, Baglivi's medical theories, especially those concerning the function of the dura mater, were not unanimously accepted by his colleagues. Therefore, the interpretative focus of this article will be directed at Baglivi's last work Canones de medicina solidorum ad rectum statices usum (Leiden, 1707) which is accompanied by three treatises in epistolary form dedicated to the Dutch botanist and professor of medicine, Peter Houttuyn (1648-1709). By following theoretical and methodological insights of the rhetoric of science, this article aims at highlighting literary techniques, i. e. subtle discursive strategies which Baglivi used to shape and legitimise his own system of medical knowledge as well as to fashion his personal habitus as a Baroque erudite. In this manner Baglivi's case will demonstrate how mechanisms and modalities of knowledge production and fashioning of scientific habitus were deeply interwoven with the processes of accumulation and distribution of science capital within the early modern res publica literaria.

KEYWORDS: Georgius Baglivi, Canones de medicina solidorum, solidist medicine, fibrillar pathology and therapeutics, rhetoric of science
1709). S osloncem na teorijsko-metodološke uvjete retorike znanosti, u radu će se nastojati osvijetlitи literarne tehnologije, tj. supštilne diskurzivne strategije koje je Baglivi koristio kako bi oblikovao i legitimirao svoj sustav medicinskoga znanja te kreirao osobni habitus baroknog erudita. Na taj način će se na Baglivijevu slučaju pokazati kako su mehanizmi i modaliteti proizvodnje znanja i oblikovanja znanstvenoga habitusa bili čvrsto isprepleteni s procesima akumulacije i distribucije znanstvenoga kapitala unutar ranonovovjekovne res publica literaria.

Kljучне ријечи: Đuro Baglivi, Canones de medicina solidorum, solidarna medicina, fibrilarna patologija i terapeutika, retorika znanosti

**Introduction**

The career of Georgius Baglivi (1668-1707), Italian scientist of Ragusan origin, seemingly provides an exemplary case of a successful *cursus honorum* of an early modern erudite physician. Although he originated from an Armenian family of poor merchants, he received decent humanist education at the Jesuit College in Dubrovnik. After both of his parents died when he was fifteen, he was adopted by Pietro Angelo Baglivi, a physician from Lecce. This was a decisive factor for Baglivi's future medical career: having successfully completed his medical studies in Naples and Salerno, Baglivi worked in hospitals in Padua, Venice, Florence, Bologna and other Italian cities where he obtained practical medical knowledge. In 1691 he became an assistant to the famous Italian physician Marcello Malphigi (1628–1694) who was one of the founders of microscopic anatomy. Closely collaborating with Malphigi until his death, Baglivi acquired admirable skills at physiological experiments and postmortem examinations. He dissected various animals such as lions, tortoises, snakes and deer and studied the function of the *dura mater* by experimenting on dogs. Moreover, owing to the fact that Malphigi worked as an archiater of Pope Innocent XII from 1692 to 1694, Baglivi managed to create an influential circle of friends and patrons at the Papal court. It is, therefore, no wonder that a year after his patron's death Baglivi became second physician to the Pope. In the following year he was elected Professor of anatomy and theoretical medicine at the College of Sapienza in Rome.1

In order to prove that he possessed necessary medical competence to obtain such a distinguished institutional position, Baglivi published his first book entitled *De praxi medica* (*The Medical Practice*). This was at the same time a programmatic account of Baglivi's own medical views, mostly founded on Hippocratic and Baconian principles, and a polemical invective against futile theoretical and philosophical approaches to the medical treatment without clinical observation. In *De praxi medica* Baglivi advocates the use of mechanistic analogies as heuristic tools but only if they are consonant with experience. He also maintains the traditional distinction between solids and fluids, but without supporting the priority of solids over the fluids as he does in his later works.2 Before long Baglivi became a member of the Royal Society (1697), the *Academia Naturae Curiosorum*, the Arcadia (1699) and Accademia dei Fisiocritici (1700).

At the very turn of the 18th century Baglivi published his most famous book *De fibra motrice et morboa* (*On Muscular and Sick Fibre*). According to the historian of medicine Hisao Ishizuka who conducted a minute analysis of the epistemic structure of the 18th century fibrillar theory, this Baglivi's work represents one of the heralds of the epistemic shift in medicine from humoralism to solidism.3 *De fibra motrice et morboa* can be described as an accurate outline of fibrillary physiology founded on two types of fibres: membranous and motor/muscular. They belong to two distinct but strictly interrelated subsystems directed by the *dura mater* and the heart. These fibres perform the principal tasks of the economy of the living organism and are subject to convulsions or relaxations.4 According to the medical historian Anna Toscano, Baglivi's studies on the structure of muscles and membranes were a key reference of the 18th century physiology, in particular his theory of the pulsations of the *dura mater* which were recorded in *De fibra motrice* and mentioned in *Philosophical Transactions* of the Royal Society. Moreover, Hermann Boerhaave’s and Albrecht Haller’s works drew directly on the morphological-structural approach elaborated by Georgius Baglivi.5

**Canones de medicina solidorum and the early modern textual culture of medicine**

Since his *De fibra motrice et morboa* mostly concerned fibrillar physiology, Baglivi wrote a separate book, *Canones de medicina solidorum ad rectum statices usum* (*Canons on Solid Medicine for the Proper Use of Equilibrium*), that dealt exclusively with fibrillar pathology and therapeutics. This latter work – which was written not long before his premature death and which also represents the apex of his medical opus – may provide clear insight into the epistemological aspects of Baglivi’s medical theory in its most elaborate phase. *Canones de medicina solidorum* will, therefore, be analysed through the prism of the rhetoric of science whose main concern is to determine how the truth of scientific utterances is accepted and established as a fact in the scientific community.6 The analysis of Baglivi’s argumentative strategies will thus...
disclose the persuasive power of Baglivi’s writings in the early modern textual culture of medicine. The book *Canones de medicina solidorum* was published by a famous Dutch typographer Frederik Haaring in Leiden in 1707, the very year of its author’s death. It consists of 60 lapidary articulated rules (canones) which were originally published as commentaries to the Roman edition of Santorio Santorio’s *De statica medicina* from 1705. The Leiden edition of *Canones* was accompanied by three treatises in epistolary form dedicated to a Dutch botanist and professor of medicine Peter Houttuyn (1648-1709). The first epistle entitled *De progressione Romani terrae motus a MDCCIII ad annum MDCCV* (On the Progression of the Roman Earthquakes from 1703 to 1705) is a detailed account of a series of earthquakes which were shaking Rome and other Italian cities from 1703 to the early spring of 1705. Baglivi uses it as a pretext for demonstrating a correlation of this exceptional natural phenomenon with the changes in the quality of soil, air and human health. Moreover, by employing the genre of learned correspondence for representing physical, medical and cultural consequences of this natural catastrophe, Baglivi constructs a self-image of an erudite polymath, an accustomed strategy for the display of accumulated cultural capital among early modern physicians.

The first part of the second epistle which bears the title *De systemate et usu motus Solidorum in corpore animato* (On System and Use of Solids in Animated Body) is a polemical treatise on the *dura mater* which Baglivi defines, in analogy to the physiological function of the heart, as “a heart or diaphragm of the brain”. Moreover, he asserts that due to the spiral structure of the brain and of the *dura mater*, they possess an innate ability to pulsate in systolic motion. The rest of the second epistle is dedicated to the solids of the body whose preponderance over the fluids Baglivi demonstrates primarily by their pathology and therapeutics. And finally, the third treatise *De vegetatione lapidum et analogismo circulationis maris ad circulationem sanguinis* (On Vegetation of Stones and on Analogy between the Circulation of Sea and Circulation of Blood) magisterially concludes the analogy of circulation of seawater in macrocosm to circulation of blood in a living body, emphasising its ability to generate even solid matters (i.e. vegetation of stones), thus drawing a parallel to the solid parts of seawater in macrocosm to circulation of blood in a living body, emphasising its ability to generate even solid matters (i.e. vegetation of stones), thus drawing a parallel to the solid parts of the body, Baglivi envisages it not as the exact counterbalance of mechanics and hydraulics, but as a complex chemical-mechanical interaction between solids and solids, fluids and fluids, and solids and fluids, which can be detected only through constant clinical observations and experiments. Moreover, he explicitly claims that all pathological processes in the human organism have their origin in the malfunction of the solids.

Baglivi’s canons on the solidist medicine are founded upon Galen’s theory of six non-naturals (i.e. air; motion/exercise and rest; sleeping and waking; food and drink; excretion and passions/emotions) combined with Santorii’s theory of insensible perspiration. Accordingly, Baglivi argues that the free flow of the fluid parts and the adequate relaxation of the solid ones are key prerequisites for the excretion and cleansing of the harmful substances from the body. In his opinion, the crucial procedure for proper medical treatment of the chronic illness is to toughen overly relaxed fibres. On the other hand, during the therapy of the acute diseases the physician should be mainly concerned with overly crispated and desiccated fibres. A relatively high number of canons are dedicated to dental care which is emphasised as one of the crucial factors of good health and normal digestion. Furthermore, special attention is given to the balance in the use of all six non-naturals and to the equilibrium of concoctions, which renders Baglivi’s canons the handbook of the “fibrillar” dietetics. Moreover, by underlying the health risks that may be induced by a too stressful way of life or overly intense emotions, Baglivi’s discourse announces a culture of sensibility which will dominate the 18th century medicine.

Despite Baglivi’s distinguished institutional status and professional prestige, his eclectic medical theories – especially those concerning the preponderance of solids over fluids and the oscillation of the *dura mater* – were not unanimously accepted by his colleagues. As a matter of fact, Baglivi claims that the *dura mater* is made of strong muscles which enable its systolic oscillation generated in the inner part of the brain. This is contested by his opponents who claim that the oscillation of the *dura mater* is not visible on the outer part of the brain. In order to refute their arguments, Baglivi employs polemical references which can be found in many places throughout his work. Therefore, a scrutiny of the subtle discursive strategies which Baglivi used to shape and legitimise his own system of medical knowledge as well as to fashion his personal habits of a Baroque erudite, may prove useful.

Following the common legitimising practice of early modern scientific works, Baglivi’s *Canones* begin with the laudatory dedication to Giovan Francesco Morosini (1658-1739) who was at the time the Venetian ambassador at the Papal court and would soon become a reformer of the studies at the University of Padua. The other foundation on which Baglivi built his scientific authority was certainly the scientific prestige of his learned correspondent Peter Houttuyn. Houttuyn, a famous botanist, professor of medicine...
at Leiden University and a predecessor to Herman Boerhaave (1668-1738), may as well have been Baglivi's link with F. Haar- ing, the printer of the Leiden edition of his book. Having in mind the enviable amount of symbolic capital invested into these two eminent contemporary intellectuals, Baglivi's references to them as his friends and protectors reveal his attempts to improve his own position in the contemporary scientific field.

Another discursive strategy that may add considerable symbolic value to Baglivi's medical theories are the rhetorical forms with which he chose to express his attitudes and scientific views: there are 51 numerically listed “canons” or general rules that he may have deliberately chosen to resonate the title of Avicenna's eponymous book. They conclude with an “epilogue” consisting of nine “medical laws” that explicitly associate Baglivi's medical views with the teachings of Hippocrates, Santorio Santorio, William Harvey and Louis Duret. In addition to the canons of solidist medicine, the Leiden edition consists of three “dissertations of various arguments” addressed to Peter Houttuyn. Despite the fact that the genres of both “canons” and “dissertations” are merely used for expressing universal claims and inferential reasoning, Baglivi supplemented them with polemical and even invective personal comments addressed to various sorts of “adversaries” (adversarii), which discloses significant divergences of his scientific thought from the scientific community of the day. According to Baglivi's explicitly contentious claims, there are three different sources of menace that belittle his medical knowledge, authority and reasoning: profane and ignorant common people (profanum et insanum vulgus), arrogant and incompetent physicians (vulgus Medicorum et scioli medentes) and alchemists (Chymistae). The objections (nuga) of the first group of his adversaries — those who “cannot judge about things and secrets of that art of which they are ignorant” — Baglivi invalidates without a hitch. He resorts to the “scourge of illness” (flagellum morbi) that is the best proof of their medical ignorance and sign of false treatments. However, Baglivi recurrently complains against the lack of respect and remunerations that ignorant people display toward learned physicians and he finally expresses his deep indignation through famous Horace's verse: odi profanum vulgus et arceo (I hate the common masses and avoid them). Nevertheless, the confrontation with the next two groups of adversaries requires a more sophisticated and efficient discursive armour which Baglivi uses with great assertiveness. In order to provide an indisputable source of his medical knowledge and show his superiority over these, Baglivi often self-consciously resorts to the popular metaphor of the oracle or the Book of Nature as a source of revelation of natural knowledge and philosophy, as well as to his own scientific experiments, observations and successful quotidian medical practice. In addition to this, Baglivi also uses traditional sources of scientific legitimations in the early modern period. These are the references to the works of “divine” Hippocrates, whose Books on Prognostics and Epidemics he quotes extensively, and of Caelius Aurelianus from Sicca (5th c. AD), the leader of the Methodist school of medicine that preferred therapeutics over theoretical medicine and developed a method of medical treatment based on constrictions and relaxations. As regards contemporary scientific authorities, Baglivi mostly resorts to Santorio Santorio's De statica medicina and William Harvey's theory of blood circulation which he proclaims to be the “two poles that govern true medicine”. In the end, Baglivi verifies his own theory of the preponderance of solids over fluids with the theory of the force of percussion by Giovanni Alphonso Botelli (1608-1679), a teacher of his patron Marcello Malphigi. As a matter of fact, Baglivi argues that fibres are moved in different directions due to the force induced by other fibres or external objects. This results in the variations of fluid parts and their interaction with solid parts according to various mechanico-physical principles. As regards the bodily fluids, Baglivi constantly points to the importance of their chemical and physical qualities (i.e. acidity, salinity, heat, greasiness, etc.) which cause tensions or relaxations of fibres through the whole organism. Consequently, Baglivi often refers to “acrimonia”. As the main cause of deterioration of bodily fluids, acrimonia represents a link between Baglivi's medical theory and Paracelsian and iatrochemical traditions. By legitimising his medical theories through chemical and mechanical laws, Baglivi thus demonstrates not only his erudition but also heralds the intimate alliance of the early 18th century medicine and natural sciences. Alongside canonical textual sources, the most solid cornerstones of Baglivi's scientific competence are his naturalistic observations and vivisections of animals. For example, as proof of the innate fibrillar capacity Baglivi refers to the letters by Charles-Thomas Maillard de Tournon (1668 – 1710), Papal legate in China, who claimed that a dead and decapitated shark, with its innards removed, is able to forcibly convulse for a long period of time. Moreover, Baglivi mentions his own observations of “English Samson”, a physically robust 28-year-old young Englishman named Richard Goy, who displayed his supernatural strength in the public places of Rome in 1704. Baglivi attributes his extraordinary muscular vigour to the innate tenseness and elasticity of his fibres which become even more powerful due to continuous wrestling and static strength trainings. However, in order to justify the main proposition, namely that his own authority and knowledge stem primarily from medical practice, Baglivi presents numerous case reports and describes minutely his own methods of treatment of chickenpox, visceral fevers, colics, hydrops, renal and ureteral calculi as well as liver tumours. According to his premise that the causes of the most widespread health disorders are tense and crisped solids, Baglivi usually prescribes warm baths, bloodletting, deer horn jelly and similar demulcent remedies. Moreover, he never misses an opportunity to criticise false and pernicious methods of medical treatments performed by his opponent vulgus Medicorum.
Nevertheless, the pinnacle of Baglivi’s medical expertise and the clearest sign of his professional authority and social prestige are the autopsies performed on the corpses of his friends, highly ranked Roman Church dignitaries: cardinal Celestino Sfondrati (1644 – 1696) who died of a large intestine tumour in 1696, and cardinal Enrico Noris (1631 – 1704) who suffered from “dry hydrops” and passed away in 1704. Both case reports of their illness and postmortem examinations are thoroughly described in the first letter addressed to Peter Houttuyn. They provide a good insight into modalities of Baglivi’s self-fashioning not only as a highly competent professor of medicine and well-trained physician who obtained a leading role in Roman medical hierarchy, but also as an erudite with a wide range of cultural interests. In order to show his profound awareness of contemporary cultural events in Rome, in his first treatise to Peter Houttuyn Baglivi reports on the discovery of the column of Roman Emperor Antoninus Pius (138-161 AD) in the area of Montecitorio in 1703. Having undertaken the epigraphical analysis of the inscription found on the stylobate of this column, Baglivi corrects the attribution of the famous spiral column situated in Piazza Colona from Antoninus Pius to Marcus Aurelius; he reports on the discovery of the gravestone of the Passiena family decorated with “the most elegant inscription”. In addition to this, he reproduces a sketch of the rare Roman coin dedicated to Marcus Antonius and Cleopatra which he kept in his personal museum. In this manner Baglivi enriches the respectability of his scientific habitus with antiquarian interests and competences which were indispensable qualities of each Baroque polymath. As well as displaying accumulated symbolic and cultural capital, in the first letter to Peter Houttuyn Baglivi also aims at showing his social network and prestige. Therefore, he recurrently refers to his villula litteraria where he used to gather with a circle of learned friends (the so-called circolo di Tambura established in 1704 by Domenico Passionei) to discuss various antiquarian, artistic and literary topics. In order to emphasise their exceptional intellectual status, he lists all of his friends by name and provides short descriptions of their most important scientific works. These include, among others, famous Italian historian Giusto Fontanini (1666 –1736), archaeologist and antiquarian Biago Garofalo (1677 –1762), bibliophile Domenico Passionei (1682 – 1761) and the prefect of the Vatican Library Giovanni Vignoli (1667–1733). Such strategies of self-fashioning can be interpreted as symbolic markers of Baglivi’s learned habitus which clearly illustrates the turning point of his medical self-image from a learned natural philosopher to an empirical natural scientist. According to German historian Michael Stolberg, this is one of the most obvious consequences of the “scientific revolution” in the medical field.

CONCLUSION

Such process of epistemological transition of medicine from natural philosophy to empirical science - which was neither easy nor straightforward in any respect - discloses the early modern scientific field as a symbolic battleground. It constantly generated challenges which aggravated the efforts of its participants to accumulate a necessary amount of various types of capital that would enable them to obtain, improve and legitimise their positions in the field. With that in mind, Baglivi’s attempt to inaugurate “solidist medicine” clearly demonstrates how demanding and troublesome a task it was, even for the most eminent intellectuals, to ensure a sufficient accumulation and distribution of their “science capital” within the early modern res publica literaria.

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References:
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