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A Comparison of Kātib Çelebî and Edward Bernard's Education, Works and Mental Backgrounds *

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A Comparison of Kâtib Çelebî and Edward Bernard's Education, Works and Mental Backgrounds

Abstract

The comparison of Ottoman and European history can be viewed as a novel approach in historical studies. Therefore, this study adopted such an approach by focusing on two important figures of the Ottoman and British intellectual life. These two people, who are often known for their catalogue and bibliographic works, were studied with respect to their intellectual skills, educational and intellectual backgrounds. The study focused on similarities and differences, and efforts were made to uncover the reasons lying behind them. This is because, being leading figures in their own cultural contexts, Kâtib Çelebî and Edward Bernard are intellectuals of the Ottoman Classical Period and of the Renaissance, respectively. This study basically aimed to compare and contrast Kâtib Çelebî [d. 1067/1657] and Edward Bernard [d. 1697] in terms of their educational background, studies, and mental background. It addressed how both scholars were brought up, what kind of works they produced besides why and how they produced them. Furthermore, based on the data from this comparison, the study also investigated if Kâtib Çelebî could be considered as a Renaissance intellectual. The reader's attention was drawn to the characteristics of the period, and an overall description of a typical intellectual in the seventeenth century was provided. Thus, this was intended to paint a global picture of the mentality of the period. Therefore, it was shown that alternative perspectives are also possible when it comes to Ottoman and European history.

Keywords

Islamic History, Ottomans, European History, Comparative Method, Kâtib Çelebî, Edward Bernard

Katip Çelebi ile Edward Bernard'ın Eğitim, Çalışma ve Zihni Arka Planlarına İlişkin Bir Mukayese

Öz

Osmanlı ile Avrupa tarihinin mukayese edilmesi tarih çalışmalarında yeni bir yaklaşım olarak değerlendirilebilir. Bu yüzden çalışmada Osmanlı ve İngiliz entelektüel hayatının iki önemli figürü merkeze alınarak bir mukayese yapılmıştır. Katalog ve bibliyografik çalışmalarıyla dikkat çeken iki figür entelektüel becerileri, eğitimleri ve entelektüel arka planları ile ele alınmıştır. Mukayesede benzerlik ve farklılıklara odaklanılmış, benzerlik ve farklılıkların sebepleri tespit edilmeye gayret edilmiştir. Çünkü kendi kültürel çevrelerinde önemli figürler olan Kâtib Çelebi Osmanlı Klasik Dönemi'nin, Edward Bernard ise Rönesans'ın bir münevveridir. Bu araştırmada Kâtib Çelebi [öl. 1067/1657] ile Edward Bernard [öl. 1697] genel olarak eğitimleri, çalışmaları eğitimleri ve zihni arka planları bakımından mukayese edilmiştir. Her iki yazarın nasıl yetiştiği ne tür eserleri ne için ve nasıl verdikleri üzerinde durulmuştur. Ayrıca Edward Bernard ile mukayesesi üzerinden Kâtib Çelebi'nin bir Rönesans aydını sayılıp sayılmayacağı incelenmiştir. Çalışmada dönemin özelliklerine ayrıca dikkat çekilmiş,17. yüzyıla ilişkin bir aydın tipolojisinin genel görüntüsü verilmeye çalışılmıştır.

Böylece döneme ilişkin genel zihniyetin ortaya konması amaçlanmıştır. Dolayısıyla Osmanlı ve Avrupa tarihi söz konusu olduğunda başka bakış açılarının mümkün olduğu da gösterilmiştir.

Anahtar Kelimeler

İslam Tarihi, Osmanlılar, Avrupa Tarihi, Mukayese Metodu, Kâtib Çelebi, Edward Bernard

Introduction

The 16th and 17th centuries are known as a period of major transformations in world history. Therefore, appreciating today is partially related to understanding the nature of those times. The emergence of geographical discoveries and similar methodical changes probably brought up the issue of classification as well as the collection of knowledge. Therefore, proper understanding of the 16th and 17th centuries depends on additional readings and evaluations of how knowledge is gained. The differentiation of Europe and its technological, socio-economic and political structure should be read and categorised with respect to this issue. Turks have always been neighbours with Europeans, interacting with them in intellectual, political and cultural domains. Europeans can be said to have begun collecting information about the East consciously and professionally from the 14th century onwards. Therefore, Europe's interest in Turkish history in general and Ottoman history in particular has maintained its vitality since the 16th century. In contrast, it is truly remarkable that the interest in the history of Europe in Turkey remained superficial.

To understand the issue better, an evaluation can be carried out on the characteristics of a typical intellectual in the Ottoman State. In terms of Ottoman history, particularly with respect to the 17th century, the most appropriate example is undoubtedly Kâtib Çelebî. His European counterpart was Edward Bernard as he produced similar works and was the founder of the European bibliography. It can be said that both figures lend themselves for comparison intended for understanding the period and recognizing a typical intellectual.

Kâtib Çelebî is a well-known figure for those who study the history of the Ottoman State. What makes Çelebi unique for many people is his methodological distinctiveness. Particularly when it comes to the literature with the allegations of the decline of the Ottomans, his views are often mentioned, and his findings are cited many times. Although discussions about him have been going on for a long time, there is need for more research on two aspects: The first of these is his methodology and resources, and the second is his comparison with his European contemporary.

The Renaissance, which started with the direct contact of ordinary people to the sacred texts in Europe, is actually a change of method. The alteration of the scholastic method in Europe through the Reform movements paved the way not for general assumptions, but for data obtained through observation. No studies have been carried out so far to compare neither the figures of the period in the Ottoman State nor Kâtib Çelebî, without political reasons.

Another avenue of research with reference to Kâtib Çelebî is the bibliography movement which apparently flourished at the time and the qualities that it had. Kâtib Çelebî made a list of virtually all the manuscripts in the Ottoman geography with the works he saw during his travels and recorded their bibliographic data. Interestingly, Edward Bernard, a professor of mathematics and astronomy, also prepared a

similar bibliography of Western manuscripts in England, within the same period. Such works of these figures are significant in terms of their being attractive and concurrent.

In this study, two leading intellectual people for both the Ottoman State and Europe are compared and contrasted, and what each of them did during the same period is examined in detail. Similarities and differences along with the intellectual backgrounds is revealed, and a broader picture of the intellectualism in that period is painted. In this context, the study discusses related key issues and their backgrounds and examines the Ottoman and European intellectual lives in the aforementioned period in detail.

1. "The Classical Period": The Reign of Suleiman the Magnificent and the Reformation

Can we speak of a classical period for Europe or the Ottoman State? If so, are the beginning and end of this period evident? Whether these questions can be answered or not actually fall within the scope of the philosophy of history. In particular, turning time into a comprehensible form leads to an internal problem.

The correspondence of a classical period to different time periods with respect to different time frames and geographical locations brings about interesting results. Therefore, perhaps it would be more appropriate to assess the understanding of classical period within the scope of time and space. However, one can say that the historical events that took place in the European and Ottoman geographies are often considered approximately simultaneous. The leading causes of synchronicity are probably their varied relations, their geographical proximity and economic relations and military struggles.

The classical period must also be related with the socio-economic and political maturity of the state itself. Moreover, it is necessary to include its scientific sophistication in this presupposition. Therefore, one could argue that, for the Ottoman State, the classical period corresponds to an era that began with Mehmed II the Conqueror [d. 886/1481] and ended with Murad III [d. 1003/1595]. This is because after its foundation, the institutionalization of the state was possible during the Conqueror's reign, and its borders reached its extreme points during that of Murad III. Actually, this does not mean much on its own because for a classical period to be considered as such, the contribution of the surrounding dates is also significant. Globally considered, if we are to talk about a classical period in Europe, it should obviously be the Reform period. This is because the movement that Luther [d. 1546] initiated manifested its effect in every field, including Ancien Régime. Although there might be some exceptions, the classical periods of different countries can be considered to have been in different time frames. For instance, the British classical period deserves to be considered separately in terms of its quality rather than quantity because although the British classical era emerged at the same time as the Reform movements, it earned the label "classic" thanks to remarkable improvements made by Henry VIII [d. 1547] in economy and education.

It is often thought that the most significant characteristic of the Renaissance was the political stances in works of art, yet the key feature was inherent in the Reform movement. There are underlying reasons why both humanism and scholasticism as a methodology were abandoned, and empiricism was put to use. This must be strongly related to the Reform movement. Even though the output of the Renaissance enjoyed

popularity because of its visibility, it was the Reform movement that formed the intellectual basis and established the system.

Accepting the Reform as a movement that only covered the practical aspects of religion could lead to seriously flawed conclusions. On the contrary, the methodological aspect of the Reform that apparently covered practical issues increased in visibility with the Renaissance. The most important reflection of the Reform was apparent in the fact that it revealed intellectual obligations. Among the genuine reasons for such a development were people's access to the Bible and Torah and the chance to interpret these holy books. As such, the interpretation of holy books resulted in the end of the monopoly of the clergy in accessing lofty knowledge; the general public was able to gain access to it. Even though how such a need arose is controversial, it would be more appropriate to say that it was due to the pressure of the tradition of interpretation, rather than economic justifications. The fact that the right to engage in the holy books was provided to ordinary [secular] persons with at least university education, along with the members of the hierarchical clergy, undoubtedly did carry far-reaching economic and political implications. The spread of education, particularly in the countries to north of the Alps, and more importantly, the poor's access to free education are closely related to the creation of national unions like those in Germany. The appearance of rich commercial cities in Central and Northern Europe, as in Italy, should certainly be addressed in line with the emergence of relatively educated middle classes. Commercial activities and monetary sovereignty are more likely to prioritize debates on dogmas rather than interpretation. The discovery that the holy books could be read in different ways opened utterly different doors to Europe. Over time, the change in method naturally manifested itself in scientific studies and technology as its advanced components.

The attempt made by the new tafsîr movement that emerged as Protestantism to interpret the holy books helped open new doors in the Christian world. On the other hand, the Church was not late to respond to this powerful development of thought in the north of the Alps, with a similar but more powerful reform movement. The Papacy, with the *Council of Trent* [1545-1563], simply challenged the tafsîr movement that developed in the north with respect to both religious faith and deeds. Thus, the Church had its first reaction in the field of education; that is, it partially expanded the possibility of interpretation of the holy books and diversified the method of interpretation in a way that it can stand to new problems without shifting to the empirical method. This could probably account for the harsh prosecution and penalizing of those who expressed their views on the scientific research methods and natural philosophy in the 16th and 17th centuries.

Undoubtedly, as the Ottomans and Europeans had a common frontier, they must be evaluated simultaneously within same context. The contact ensured by geographical proximity produced economic, social, political and cultural similarities. The arrival of Europeans to America and the Far East and the Ottomans extending their lands to three continents occurred in roughly the same time frame. In this regard, one could say that political and commercial expansion were synchronously occurring phenomena. Similarly, it seems possible to simultaneously evaluate the time frames which witnessed the pinnacle of intellectual production and higher education institutions where they were highly visible. It is also noteworthy that as a result of the intellectual production, various institutions were established in every field, along with the construction of architectural masterpieces at roughly the same time.

2. Kâtib Çelebi and Edward Bernard

The essential information about the life story of Kâtib Çelebi can be obtained from two of his own works. The first of these is *Süllemü'l-vüṣûl*, and the second is *Mîzânü'l-ḥaḳḳ*. Çelebi provided his curious readers with brief information about himself in both sources. Neither of the mentioned sources include information about where Çelebi was originally from. However, as far as he learned from his mother, he says that he was born in Istanbul in February 1609. He noted that his father, whose name was Abdullah, had qualified as an armorer from Enderun.¹ His father's duty could furnish some clues as to the family environment where Çelebi grew up. Although he might not have received a systematic madrasa education, his family could have shown adequate care to his training. It is understood that Kâtib Çelebi apparently received his primary education from private tutors that his father hired for him and later studied to memorise the Quran, and for this reason, he tried to complete his studies in the Darülkurra of Mesih Pasha. His life story informs us that he took lessons from the teachers named Kırmımlı İsa Halife, Zekeriyya Ali İbrahim Efendi and İlyas Hoca. He completed his studies on calligraphy by taking lessons from a person known as Böğrü Ahmet Çelebi.²

After taking the basic lessons, probably thanks to his father's relations, she started to work as a civil servant as his initial level in official duty in the Anatolian Accountancy Office, one of the sections of the Divan-ı Hümayun. Çelebi was probably around fourteen years old when he began to perform this first duty, in which he learned most probably accounting methods, the functioning of the state, along with special writing types such as *siyāka*.³ For this reason, it is necessary to view the "office," which Çelebi served for, as a school. Although the office hardly corresponded to the systematic higher-level formal education in the Ottoman State, it was a form of in-service training itself. Those trained here could progress based on the promotion system within the functioning of the state. As such, those who worked in the offices were trained and got promoted within the master-apprentice hierarchy and practice. In fact, Çelebi already expresses this by saying "...as my father was a government official, I was able to enter the class that he belonged to, as I was fortunate enough".

As understood from his life story, while Çelebi continued his education in the office, he always went on military expeditions. In the first, he made Terjan and Baghdad expeditions with his father. His return to Istanbul from the expedition that he went on during the siege of Erzurum [1627-1628] was a milestone in his life. It is understood that Çelebi attended Kadızâde Mehmed Efendi's [d. 1045/1635] lesson on his return to Istanbul, and he was highly influenced by the lesson itself and the lecturer's attitude towards the value of science. Later, he attended the lessons taught by A'reç Mustafa Efendi, who won a name for himself in his period. Çelebi had the chance to see the higher education books collected and organized by A'reç Mustafa Efendi; he read *al-Endelüsiyye*, *Hidâyetü'l-ḥikme*, and the commentary on *Mûlaḥḥaş fî'l-hey'e* and *Eṣṣâlu't-te'sis*.

Even though he participated in different expeditions later, he did not give up his education. He attended the lectures delivered by Abdullah Efendi, the mudarris of the Hagia Sophia Mosque and Keçi

¹ To be "Cherag" It means to start receiving a salary or to retire. Mehmet Zeki Pakalın, *Osmanlı Tarih Deyimleri ve Terimleri Sözlüğü* (İstanbul: Milli Eğitim Bakanlığı, 1993), 1/352.

² Orhan Şaik Gökyay, *Katip Çelebi* (Ankara: Kültür ve Turizm Bakanlığı, 1986), 12.

³ Orhan Şaik Gökyay, "Kâtib Çelebi", *Türkiye Diyanet Vakfı İslâm Ansiklopedisi* (Ankara: Türkiye Diyanet Vakfı, 2002), 25/ 36.

Mehmed Efendi, the mudarris of the Süleymaniye Mosque; this means he also studied at the madrasa level. He read Ibn Hajar al-Askalânî's [d. 852/1449] *Nuḥbetü'l-fiker* in lessons taught by Preacher Veli Efendi and also participated in Elfiyye classes. He also had the chance to study *Telḥişü'l-miftâh* and *Şemsiyye* in lessons by other teachers and he further trained himself.⁴ In *Mîzânü'l-ḥaḳḳ*, he meticulously listed the other lessons he attended.

It is probable that with a large amount of inheritance left by a relative, it was much easier for him to make his living. It was even possible for him to devote himself to his scientific studies by dividing this heritage in line with his standards of living. He spent the aforementioned inheritance to support himself and to purchase books, except for some of it that he had allocated for marriage. Kâtib Çelebî, who had a son, gave up his job due to an issue related to his promotion in his profession and devoted himself to the education of his child, to teaching those who wanted to take lessons and to doing research on his books. He died on October 6, 1657.

It is certain that Kâtib Çelebî had been to different geographies during his lifetime and that the traces of the era he lived in permeated his books. With the influence of his curiosity and personality, he produced works that should be meticulously examined in the history of the Ottoman State. There is no doubt that these works are fundamental works of reference, just like those of Bernard because his works *Keşfü'z-zünûn*, *Cihânnümâ*, *Fezleke* among others not mentioned here have been basic works since his time. Geography, history and methodology have been built on these works and have progressed thanks to them. Although there are some debates today, it is still the case in a great many areas.

In Kâtib Çelebî, it is possible to find the intellectual skills of empiricism and questioning which are in high demand among current publications in the West. Later researchers found Kâtib Çelebî interesting, partially because what is seen in the West were already present in his works. After all, the Western approach supporting causality with material sources of information produced new results in terms of method. The most obvious outcome of this effort was apparent in his perception of the universe as Çelebi had always preserved the world-centred perception of the universe proposed by Aristotle and grounded by Ptolemy, instead of the idea of the universe introduced by Tycho Braché [d. 1601] and further developed by Nicolaus Copernicus [d. 1543].⁵ However, Çelebi probably failed to overcome this mentality, due to the public consent on the issue. In his own life story, although he says that he read Ali Kuşçu's [d. 879/1474] *Muhammediye* besides *Şerḥ-i eşkâl* and *Şerḥ-i Çaqmînî* and he gained the skill of making a schedule showing locations and movements of stars, creating main rules and making calendars with these readings, he had some reservations about applying the new understanding in the West.⁶ Perhaps, this should not be expected from him.

Others' perceptions of Kâtib Çelebî's personality are predominantly positive. Both his contemporaries and later sources almost agree that Çelebi's morality is worthy of commendation. Mehmed İzzetî b. Lutfulah's words can aptly illustrate this: "Çelebi was a benevolent, good-natured person, a man of few words and a dominant man."⁷ Çelebi was probably a dignified, quiet person who could separate agents from acts, and

⁴ Gökyay, "Kâtib Çelebi", 25/37.

⁵ Hilmi Ziya Ülken, "Katip Çelebi ve Fikir Hayatımız", *Katip Çelebi: Hayatı ve Eserleri Hakkında İncelemeler* (Ankara: Türk Tarih Kurumu, 1957), 178.

⁶ Kâtib Çelebi, *Mîzânü'l-hakk*, 132-133.

⁷ Gökyay, *Katip Çelebi*, 21.

also someone who thought over cause and effect relationships. His inquisitive and curious personality probably led him to work and contemplate on books for hours in later years. He states that this first happened to him when he was younger; he spent time examining books at night by candlelight. However, unlike such positive perceptions, there were also those who thought differently about him. It is also reported that, although not many, there are also very harsh sentences used to describe Çelebi, which are beyond the limits of criticism.⁸

Edward Bernard was born in Northamptonshire in 1638. His father was Joseph Bernard, the rector of Perry St. Paul.⁹ After his father died soon after his birth, Bernard was left alone with his mother and was sent to his uncle for better education. His uncle, about whom very little is known, enrolled him in the Merchant-Taylor School in 1648, which would have significant impacts on his career in the future. It is understood that he received high-quality education under the mentorship of Thomas Wyatt, who was one of the best teachers of the time. He took Latin and Greek lessons at the same school, and he significantly improved himself in languages.¹⁰ While studying these languages, he tried to use methods such as philological comparison and criticism. After the aforementioned school, he continued his education at John's College. Then he started to work on several other Eastern languages, such as Arabic, Syriac, Coptic and Hebrew, as he did not feel himself competent enough in languages. During his higher education, he took lessons from famous teachers of the period; for instance, he studied maths with John Wallis [d. 1703]. As a result of these studies, he was awarded the degrees of B.A. in 1658, M.A. in 1662 and B.D. in 1669.¹¹

He frequently travelled during his lifetime. As such, between 1668 and 1669, he continued his research in Leiden in mathematics and particularly in the fields of geometry and astronomy developed by Arab scholars. Upon being invited by King of France Charles II [d. 1685] in 1676 to teach his sons, he spent some time at the palace teaching the princes. Besides his various astronomical observations, he prepared astronomical tables displaying the positions of the stars. He gave up his job at Oxford in 1691 and spent his retirement period in Brightwell.¹² Bernard, who died at the age of 58 in 1697, was buried somewhere in the north wall of the chapel at St John's College.¹³

Bernard had administrative positions at the university for a while and did managerial work at key positions. On April 17, 1667. He was appointed to Oxford University as a proctor while he was a fellow of John's College.¹⁴ However, for Bernard, the turning point in his life was probably his appointment to the

⁸ Orhan Şaik Gökyay, "Kâtip Çelebi: Hayatı-Şahsiyeti-Eserleri", *Katip Çelebi: Hayatı ve Eserleri Hakkında İncelemeler* (Ankara: Türk Tarih Kurumu, 1957), 12.

⁹ Leslie Stephen – Sidney Lee, *the Dictionary of National Biography: From the Earliest Times to 1900* (London: Oxford University Press, 1917), 2/378.

¹⁰ Harry Bristow Wilson, *The History of Merchant-Taylor's School: From Its Foundation to the Present Time* (London: [y.y.], 1814), 797.

¹¹ At Oxford University, *Baccalaureus* refers to bachelor of arts (BA); *Magister Artium* refers to master's degree (MA), and *Baccalaureus Divinitatis* means a postgraduate degree (BD) in theology.

¹² Raymond Flood - John Fauvel, "John Wallis", *Oxford Figures: Eighth Centuries Of the Mathematical Sciences*, ed. John Fauvel, Raymond Flood, Robin Wilson (Oxford: Oxford University Press, 2013), 135.

¹³ Stephen – Lee, *The Dictionary of National Biography: From the Earliest Times to 1900*, 2/379.

¹⁴ Wilson, *The History of Merchant-Taylor's School: From Its Foundation to the Present Time*, 796.

Savilian Chair. When 1673, Christopher Wren [d. 1723] was appointed as an adviser to the king, Edward Bernard, who had been his assistant since 1669, was promoted to the chair.

Bernard delivered geometry and astronomy lessons at the Savilian Chair between 1673 and 1691. As one researcher points out, along with Bernard, such major scholars of the time as John Wallis, Edmund Halley [d. 1742], David Gregory [d. 1708], were keenly aware of the importance of Arabic in expanding their knowledge of mathematics.¹⁵ Perhaps simply because of this, mathematics became Bernard's main preoccupation. Working from there, he headed towards the works of Muslim scholars who quoted and interpreted the works of Greek mathematicians. This must have caused to him to feel that he should study first-hand sources. Thereafter, it is clear that he was interested in Arabic manuscripts and was densely occupied in them.

Bernard was one of the experts of his time, particularly in Eastern languages. He had the opportunity to use his skills and extraordinary talents in this field in two areas. That is, he put a lot of effort in compiling Eastern manuscripts and classifying them and displayed remarkable skills in extracting the necessary information from these manuscripts and using them. Probably just because of this skill, he went to Leiden to act as a consultant on the fifth, sixth and seventh books of Apollonius' work *the Conic* and worked there for a long time. Since the original text of this important book with an interesting story had been missing, this copy was bought by Jacobus Golius [d. 1667] in Aleppo and brought to the library. Therefore, a copy taken by Bernard himself was brought to Oxford and was published by Dr. Halley in 1710. On his return from Leiden, Bernard devoted himself to working at the Bodleian Library in Oxford as he had always taken interest in the valuable manuscripts in this library.¹⁶

Although Bernard was a good mathematician and astronomer, he exhibited his most important skill in classifying manuscripts. Euclid's work *the Elements* and Apollonius' *the Conics* were among his special interests, as these were required readings at the Savilian Chair. However, he had always been interested in language studies. In his correspondence with his friends, Bernard talked at length about the language problems he sometimes experienced in manuscripts.¹⁷

Although Bernard planned to publish the works of Euclid, Proclus, Apollonius, Serenus, Archimedes Eutocius, Atheneus, Vitruvius, Diophantus, Theon, Nicomachus, Theodosius, Antolycus, Menelsus, Ptolemy, Almagest, Psellus, Manilius, Porphyry, Bryennius, Aristoxenus and Nicomachus in fourteen volumes, this was possible with the work of Dr. Smith titled *Veterium Mathematicorum Synopsis*, published in 1704. Later, other studies also continued to be published by Oxford University.¹⁸

¹⁵ G. A. Russel, "Introduction", *The 'Arabick' Interest of the Natural Philosophers in Seventeenth-Century England*, ed. A. G. Russel (Leiden: E. J. Brill, 1994), 14.

¹⁶ Charles Hutton et al., *The Philosophical Transactions of the Royal Society of London, From Their Commencement, in 1665, to the Year 1800, Abridged, With Notes and Biographic Illustrations* (London: C. and R. Baldwin, 1809), 3 / 75-76.

¹⁷ Charles G. D. Littleton, "Ancient Languages and New Science, The Levant in the Intellectual Life of Robert Boyle", *The Republic of Letters and the Levant*, ed. Alastair Hamilton etc. (Leiden: Brill, 2005), 162.

¹⁸ A. de Morgan, "Oxford Edition of Pappus", *Notes and Queries: A Medium of Inter-Communication for Literary Men, Artists, Antiquaries, Genealogists, etc.* (London: Bell and Daldy, 1856), 2/227-228.

As early as 1698, one year following the death of Bernard, the Bodleian Library at Oxford University bought manuscripts on geometry, astronomy and some others on linguistics, including al-Bîrûnî's [d. circa 453/1061] *al-Ķânûn*, for 200 pounds.¹⁹

Perhaps science and learning were not totally polarized at the time. The Latitudinarian²⁰ movement meant something significant. These were the main developments in the 17th century. In a sense, there was an impression in Edward that religion and science match up with each other. Perhaps the most significant outcome produced by the aforementioned developments was catalogue studies.²¹

3. The Scientific Curiosity of Kâtib Çelebî and Edward Bernard in the Light of their Times

Kâtib Çelebî did not receive a systematic madrasa training, and this probably affected the rest of his life. It is remarkable that he described himself as "one of the clerks/kâtibs" whenever he needed to provide information about himself. A significant finding ascertained by Adivar was that he was "kept at a distance" by madrasa scholars, probably due to his lack of madrasa education. If it is true, Çelebi's constituting an unconventional point of curiosity in the scientific wisdom available at the time and his being ignored by the leading actors of the regime must have influenced his thoughts. This state of his was also seen in Mustafa Âlî of Gallipoli [d. 1008/1600], who developed a critical nature as a result of his unrealized expectations. "As he came into contact with western science, thanks to his friends, his critical ideas were fully developed, but at this time, perhaps by necessity, he was caught in the illusion of self-admiration and started to attack the so-called scholars and ordinary Sufis whenever possible".²²

Despite the developments that occurred during the marvellous period in the West, there must be certain reasons why Çelebi remained relatively hesitant about his curiosity. Although there are certain traces of empiricism in his works, his method was actually not directly related to it. The biggest reason for this was that Çelebi failed to develop his thoughts in collaboration with others in an organized way. On the other hand, it is easily understood that Bernard's works and his critical efforts were fed by an intensive shared effort. A similar critical struggle focuses on systematic facts, as seen in *Mîzânü'l-ḥaḳḳ*, rather than on the basis of text and thought in Kâtib Çelebî. Perhaps it is possible to view this approach in terms of thought processes and as a sharp criticism of the Ottoman administration and thought system. However, further research into Çelebi work is needed to explore the ideas that Bernard developed with reference to highly concrete issues, such as Eastern manuscripts and mathematics. As can be seen both in Evliya Çelebi

¹⁹ Colin Wakefield, "Arabic Manuscripts in the Bodleian Library", *The 'Arabick' Interest of the Natural Philosophers in Seventeenth-Century England*, ed. G. A. Russell (Leiden: E.J. Brill, 1994), 136-137.

²⁰ Latitudinarianism is a philosophical movement that emerged among Christian theologians in Britain in the 17th and 18th centuries. They supported free thought and its free development rather than sharp perspectives on scientific studies. For more information: Patrick Müller, *Latitudinarianism and Didacticism in Eighteenth-Century Literature: Moral Theology in Fielding Sterne, and Goldsmith* (Münster: Peter Lang, 2007), 15-44.

²¹ Michael Cyril William Hunter, *Science and the Shape of Orthodoxy: Intellectual Change in the Seventeenth Century Britain* (Suffolk: St. Edmundsbury Press Ltd., 1995), 117.

²² Abdülhak Adnan Adivar, *Osmanlı Türklerinde İlim* (İstanbul: Remzi Kitabevi, 1982), 150.

[d. circa 1095/1684] and Mustafa Âlî of Gallipoli, Çelebi's thinking remained shallow. Although it could be possible to understand and predict why this was the case, it is difficult to know it for certain.

It is possible to see methodology as one of the main differences between Çelebi and a common Renaissance intellectual although there is not a very sharp distinction between the two. After all, Çelebi thought in the same way his ancestors did. Although he took interest in different fields, he principally contemplated on the general working principle of madrasas. While the scholastic method evolved into empiricism in the West, right from the 16th century, Çelebi still used what he had learned before. On the subject of method, Çelebi's response to Yahya Efendi's question, "Would you lecture in the madrasa or study on Hashiyas?" provides a clearly stated summary. According to Çelebi, "his method was to preserve the manners by dealing with multitude through the single and covering what is general. It was decided that being committed to the particular and initiating discussions was a waste of time. His hard effort prevented being contented with a single branch of science."²³ As can be understood, Çelebi followed a deductive method. It would be appropriate to view his books, which are the products of his interest and knowledge in various fields, as an outcome of this method.

Bernard, on the other hand, probably had a world of thought far from such a method. His curiosity and interest in mathematics and astronomy directly helped him learn Arabic. However, the indications of a change in method in the 17th century, which was a critical period, can be noticed in Western scholarship in a such a way that is different from Muslim scholarship. In Bernard's correspondence with his friends, it is possible to find some clues as to the nature of this difference. Bernard's propositions about the phases of the sun and the observation of it as mentioned in a letter that he wrote to his friend Flamsteed [d. 1719] on July 3, 1684 or Flamsteed's highlighting the importance of observation in his letters to Bernard are extremely important in this respect.²⁴ His interest in experimentation and observation reveals the differences between his method and the deductive method of Çelebi. It is true that, whether consciously or not, Bernard did not hesitate to voice his opinion on this issue. We should admit that, in collaboration with Robert Boyle [d. 1691] and Edmund Halley, they further improved the method of observation they adapted from Muslim scholars, particularly İbnü'l-Heysen [d. circa 432/1040] and Câbir b. Hayyân [d. circa 200/815].²⁵ But in another letter that Bernard sent to John Collins [d. 1683] on April 3, 1671, long before his letter to Flamsteed, he underscored the role of acquired knowledge in obtaining new knowledge, even though he referred to the previous studies and attributed value to observation and experimentation, and he showed the Royal Society as the authority to do this.²⁶ Although we cannot say that this statement directly matches up with information that points beyond empiricism, his emphasis on past knowledge and its synthesis with new knowledge should be considered important. Moreover, official academies, which did not exist in the Ottoman State, fulfilled a quite different and extremely important role outside of universities in Europe.

Bernard's curiosity in Arabic led him not only to take an interest in different areas but also to possibly produce his work titled *Catalogi*, which is the same as *Keşfü'z-zünûn*. More importantly, his willingness to

²³ Kâtib Çelebi, *Mizânü'l-hakk*, 131.

²⁴ Eric Gray Forbes et al., *The Correspondence of John Flamsteed: First Astronomer Royal: Volume Two 1682-1703* (Bath: IOP Publishing Ltd., 1997), 174.

²⁵ Jan Loop - Johann Heinrich Hottinger, *Arabic and Islamic Studies in the Seventeenth Century* (Oxford: Oxford U Press, 2013), 4.

²⁶ Stephen Jordan Rigaud, *Correspondence of Scientific Men of the Seventeenth Century: Including Letters of Barrow, Flamsteed, Wallis, and Newton* (Oxford: The University Press, 1841), 1/158.

establish the fundamental units he needed to access real knowledge in astronomy and mathematics helped him to produce new works. In fact, the publication of *De mensuris et ponderibus antiquis* (Ancient weights and measures) in 1688, which could be considered as a follow-up of Edward Pococke's [d. 1691] work should be understood as the outcome of such an effort. This is because the book grew into an extremely significant and fundamental work as it encompassed extensive information about measurements which had been used until that time. Bernard established a firm basis for the controversial and unreliable measures with the help of Arab sources. His approach certainly facilitated more robust and reliable observation and record keeping for scientific purposes.

An issue of further discussion is whether Kâtib Çelebi's curiosity was directly related to the establishment of science as in Bernard. However, it could be hypothesized that Çelebi's expertise in at least one of the issues that he took up in his works was related to his curiosity, if not in each of his works. A good example of this would be his noting, in *Mîzânü'l-ḥaḳḳ*, that he had grown curious about the science of medicine because of his illness, which in his own words, imbalanced his nature. Although he did not directly produce a work in this field, he wrote that he had begun to study medical science to seek healing and had even resorted to other methods of spiritual treatment.²⁷

Suraiya Faroqhi attempts to understand Çelebi's interest in geography by associating it with the time in question. According to Faroqhi, Çelebi's interest in non-Ottoman regions is the outcome of some realistic and highly day-to-day affairs. The main reason for this interest should be the Venetian Wars, which took place in the time when Çelebi lived, especially the sea battles in Crete and the Thirty Years' War in Europe between 1618 and 1648.²⁸

It is known that Abdürrahim Efendi, the Shaykh al-Islām of the era [d. 1066/1656] frequently invited Çelebi and had conversations on science with him. It seems that Kâtib Çelebi's reaching such high-status people in his period was an important issue for him. The Shaykh al-Islām of the time sent *Tamvîmü't-tevârîh*, one of his works, to Koca Mehmed Pasha and said, "he deserves higher ranks as he hardly desires this world; he is not after promotion and reputation. You should never hesitate to grant whatever he wishes in this job". Çelebi declares that by saying this, the Shaykh al-Islām functioned as an intermediary for his appointment to a higher position.²⁹ Even though such friendships of his caused discontent among the 'ulamâ' class, it is important that he came into contact with the key administrators of the state. Maybe just because of the depth of his knowledge, maybe because of such relationships or his career in accounting, he was invited to a critical meeting to seek his opinions. This meeting was held on February 17, 1653 under the chairmanship of Mehmed IV [d. 1104/1693] to discuss the economic condition of the state. Although it was a relatively technical and bureaucratic meeting, he wrote his work called *Düstûrû'l-'amel*, a work focusing on budget and financial difficulties, thanks to this meeting.³⁰ The official contact of Kâtib Çelebi with the

²⁷ Kâtib Çelebi, *Mîzânü'l-ḥaḳḳ*, 132.

²⁸ Suraiya Faroqhi, *Osmanlı Tarihi Nasıl İncelenir: Kaynaklara Giriş*, trans. Zeynep Altok (İstanbul: Tarih Vakfı Yurt Yayınları, 1999), 234.

²⁹ Kâtib Çelebi, *Mîzânü'l-ḥaḳḳ*, 134.

³⁰ Bilal Yurtoğlu, *Katip Çelebi* (Ankara: Atatürk Kültür, Dil ve Tarih Yüksek Kurumu Atatürk Kültür Merkezi, 2009), 142.

state was clearly limited with this, but his wider and systematic influence was only possible through his works.

Bernard's having received better higher education than Çelebi enabled him to take on different bureaucratic duties. His most important duty was to head the Savilian Chairs. Although these chairs were intended for education at the time, they fulfilled some sort of scientific support function in England. The Savilian and Laudian chairs, which represented the culmination of scientific activities and the state, were among the leading scientific institutions of the time. The Savilian Chair was established by Henry Savile in 1619 for distinguished scholars to deliver lectures only in the fields of geometry and mathematics and received financial support. The Savilian Chair coincides with the time when Bernard was at the pinnacle of his profession. He was appointed as an assistant to Christopher Wren, who was the head of the Savilian Chair of Astronomy in 1669, but when Wren was promoted as a royal adviser, Bernard became the chair and held it between 1673 and 1691.

It is probable that his diligence in his job helped open other doors for him. For instance, one of the bureaucratic and religious duties offered to him was the private priesthood of Peter Mews, the bishop of Bath and Wallis, which he undertook during his early career. Moreover, it should also be noted that immediately after his doctorate in Oxford, he was appointed as the rector of Brightwell and gained ground in the religious-bureaucratic hierarchy.³¹ Each of these were deemed to be extremely important tasks. Moreover, his correspondence with leading scientists of his time means that he was a well-connected scholar. Moreover, especially the function performed by academies is related with the establishment of a European-wide scientific network. Virtually all scientists were related with and informed about one another. Various institutions, particularly the Royal Society, which was founded in England, provided scientists with the opportunity to meet, discuss scholarly issues and be informed about each other in a different way than universities. This kind of structural organization in Bernard's scholarly circle of friends from Flamsteed to Halley must have played a major role.

Pococke helped Brian Walton [d. 1661] identify and compile the Arabic translations of the Bible. Thanks to this effort, Bernard, Narcissus Marsh [d. 1713] and Thomas Hyde [d. 1703] began to work at Oxford in a team that undertook in-depth research studies. Unfortunately, these studies initially had scientific objectives in mind, which evolved into bureaucratically oriented affairs over time. Thus, more and more people who knew Eastern languages were assigned to diplomatic missions. In fact, talented people who were knowledgeable about the East and were needed by the state had always been raised there.

Scientists of this period communicated extensively among themselves. For instance, letters from those days can be considered as the most notable evidence of this. While in Aleppo, Robert Huntington [d. 1701] would correspond with İstefan al-Düveyhi [d. 1704], the Maronite Patriarch in Antakya. As understood

³¹ William Beckett, *A Universal Biography; Including Scriptural, Classical, and Mythological Memoirs, Together with Accounts of Many Eminent Living Characters the Whole Newly Compiled and Composed from the Most Recent and Authentic Sources* (London: Mayhew, Isaac, and Co., 1834), 1/425.

from a letter written by Bernard to a friend, Bernard spoke of Huntington's getting a Samaritan Torah during his tenure in Aleppo.³² This highlights two critical skills: scientific communication and working collaboratively as a team. While working in Leiden, Bernard sent Pococke a copy of the catalogue he produced in 1668 to get his thoughts. It is also known that Pococke provided him with feedback on the deficiencies or mistakes he found in the catalogue sent to him. That is, in the reply message Pococke sent to Bernard, there was feedback regarding some article headings that were missing or inadequate. According to Pococke, Bernard should have made the necessary additions as he overlooked some important points in the entry titles and descriptions he provided.³³ Criticism was important to Bernard. He proofread Richard Bentley's [d. 1742] work titled *Epistola ad Johannem Millium*, again upon his request, and he made the necessary revisions. According to Bernard, the content of Bentley's critical work is extremely unsettling, awful and overwhelming. Therefore, he warned him to revise and correct the redundancies. However, Bentley courteously refused this request and continued to preserve his thoughts on what he knew.³⁴

On the other hand, the nature of the scholarly collaboration among Ottoman scholars should particularly be examined. There are also opinions highlighting that Çelebi was not very popular among scholars although he had acquaintances, not only at the office but also within the bureaucratic structure.³⁵ Moreover, he clearly notes, in his life story, that when the possibility of a new duty appeared for him, he was hampered by gatekeepers.³⁶ Therefore, although the top madrasas were located in Istanbul, it is not clear yet how he communicated with the Ottoman scholarly world. There were probably people outside of the world of institutional science that he consulted or collaborated with. French-born Mehmed İhlâsî [d. circa 1065/1655] was probably one of the chief assistants of Çelebi, particularly due to his translations from Latin.³⁷ Although İhlâsî is said to have helped Çelebi in translations, how much help he offered is open to debate. This is because *Atlas Mayor*, for instance, along with other translations are a compilation rather than a direct translation according to Adivar.³⁸ The words that Abu Bakr Behrâm [d. 1102/1691], who began to translate *Atlas*, after Çelebi wrote about the author of this work, show that Ebû Bekir b. Behrâm knew him. This was also verified by some researchers who stated that they were both friends and colleagues.³⁹ However, serious doubts about modernity should be voiced. It is also a matter of curiosity whether Çelebi simply exchanged correspondence with Tezkireci Köse İbrahim Efendi of Szigetvár, a translator whose name is heard in translations from the West. Because it is already known that İbrahim Efendi translated Noel Durret's [d. 1650] zîc titled *Nouvelle théorie des planètes (A new theory of planets)* under the name of *Secence'l-eflâk fî gâyetü'l-idrâk* and sent a copy to Qadiasker [military judge] Ünsî Efendi.⁴⁰ Moreover, as reported by Adivar, although there was

³² H. T. Norris, "Edmund Castell and His *Lexicon Heptaglotton* (1669)", *The 'Arabick' Interest of the Natural Philosophers in Seventeenth-Century England*, ed. A. G. Russel (Leiden: E. J. Brill, 1994), 72.

³³ Wakefield, "Arabic Manuscripts in the Bodleian Library", 138.

³⁴ Anthony Grafton, *Defenders of the Text: The Traditions of Scholarship in an Age of Science: 1450-1800* (Cambridge: Harvard University Press, 1994), 15.

³⁵ Adivar, *Osmanlı Türklerinde İlim*, 151.

³⁶ Katib Çelebi, *Mîzânü'l-hakk*, 134.

³⁷ Katib Çelebi, *Mîzânü'l-hakk*, 134.

³⁸ Adivar, *Osmanlı Türklerinde İlim*, 155.

³⁹ Thomas Goodrich, "Osmanlı Haritacılığı 1450-1700", *Doğumunun 400. Yıl Döneminde Kâtip Çelebi*, ed. Bekir Karlığa - Mustafa Kaçar (Ankara: Kültür ve Turizm Bakanlığı, 2012), 137.

⁴⁰ Ekmeleddin İhsanoğlu, *Osmanlılar ve Bilim: Kaynaklar Işığında Bir Keşif* (İstanbul: Etkileşim Yayınları, 2010), 130.

another person named Aleksandros Mavrokordato, who studied medicine at the universities of Padua and Bologna, he was probably still studying in Europe during the later life of Çelebi.

While the global mindset in the West gradually evolved towards the heliocentric approach, the persistence of the world-centred perception in its virtually unaltered form in the Ottoman land constitutes one of the important problematic issues. However, the observational practices of Muslim astronomers were highly critical. In fact, the observations directly served for satisfying scholarly curiosity as well as attaining daily objectives. It was a daily necessity for Muslims to closely follow the movements of celestial bodies to decide on the time of their worship. However, unlike those in the Ottoman State, observations in the West advanced for some reason and gave way to a heliocentric understanding of the universe, moving away from an earth-centred one.

The chief reasons why both Bernard and Çelebi are known today are the catalogues they prepared. These two produced important works in different fields, but they probably owed the most important part of their reputation to the fact that they made meaningful lists to organize the books around them and any others they could find. There were products in the Ottoman experience or in Ibn al-Nedîm's [d. [d. circa 385/995] work; there were also similar studies in Europe. However, what deemed the catalogues of both scholars critical was that they organized books in their own countries or immediate vicinities by using an encyclopaedic concern and a new order. Highlighted by Çelebi, his work *Keşfü'z-zünûn*, which included meticulously prepared lists, meant something different. The scientific, interpretative comparisons he included in the introduction of this work mean that he reinterpreted the traditional classification of knowledge. The aforementioned work could be considered as the best example of high-quality knowledge-science classification when Mevzû'âtü'l-'ulûm by Taşköprüzâde Ahmed Efendi [d. 968/1561] is dismissed. This is because it would not be right to consider *Keşfü'z-zünûn* merely as an index of books. It is remarkable that Çelebi provided explanatory notes about the books he saw. A great novelty was Çelebi's including additional information such as the author, language, date of publication, and annotations of the works he listed in his book. Listing the books by using order of the letters in the Arabic alphabet could obviously allow his book to be considered as an index and a useful research tool.⁴¹ However, in Europe in the aforementioned period, there were no indexes the end of books similar to those in today's publications. This is because the aforementioned classification functions as a table of contents rather than an index. However, in the West, tools developed as a part of page setting and intended for more functional use of books were first seen during the second half of the 16th century. The most developed examples of indexes appeared in 1633.⁴² On the other hand, Bernard's catalogue, although not yet certain, is considered as the beginning of bibliography in Europe. Even if the work is considered to be shallower in the description of the books compared to that of Çelebi, it is an eminently valuable work. It is particularly significant in terms of including manuscripts and early printed books found in London, Oxford and surrounding libraries.⁴³

⁴¹ İlhan Kutluer, "Keşfü'z-zünûn: Klasik Bilim Geleneğimizin Büyük Atlası", *Vefatının 350. Yılında Kâtip Çelebi*, ed. Sait Öztürk (İstanbul: İstanbul Büyükşehir Belediye Başkanlığı Kültürel ve Sosyal İşler Daire Başkanlığı, 2007), 68.

⁴² Bradin Cormack - Carla Mazzio, *Book Use, Book Theory: 1500-1700* (Chicago: University of Chicago Library, 2005), 53, 65.

⁴³ Alessandra Petrina, *Machiavelli in the British Isles: Two Early Modern Translations of the Prince* (Farnham: Ashgate Publishing Ltd., 2009), 63.

Bernard often paid attention to the ordering of books in the original way. Besides the titles of the books, he also included the names of the authors, if any. It is also seen that he paid attention to the time of writing or publishing. At times, it is also seen that concise information about the contents of some books is provided as in “*A Treatise of Coats of Arms, intuled liber Armorum*; this book is said to have been translated and compiled together at St. Albans, in 1486, reportedly by the Lady Julian Berners, Lady of the prioress of Sopwell Nunnery near St. Albans. It was first printed in the year mentioned above.⁴⁴ The indexes at the end of each section are quite striking. Author names in the indexes are listed alphabetically, with additional distinctive information if the author names can be confused. In addition to some place names, important book titles are also included in the list. In this respect, this work is of great value. Also, the useful information about the Bodleian Library provided in the introduction is particularly important. Both books were written in Latin, English and Arabic, which were lingua francas in their respective periods and cultures.

The general view and approach seen in Kâtib Çelebî and partially noticed in Edward Bernard in line with the characteristics of his time was gradually replaced by specialization, at least in Europe. While the first signs of this were seen with the universities' starting to establish faculties within themselves, it further advanced during the time of Bernard. When John Greaves, a mathematics and astronomy scholar and an English scientist that travelled in the Ottoman State, came to Istanbul in 1638, he carried out research on the construction of mosques and tent sizes, and he mentioned his experiences in his book *Observations on his Travels*. Greaves published Ali Kuşçu's Risâle fî'l-hey, originals of which were in his own collection, under the title of *Ali Kushgii de terrae magnitudune and sphaerarum coelestium a terra distantiiis*, first in 1650 and then in 1652.

Bernard and the catalogue he produced did not emerge from personal curiosity alone. Especially, it can be thought that this is the outcome of the rapidly developing cultural curiosity, along with the historical, philological and scientific requirements. It is already possible to see the signs of this in the catalogue studies of John Moore, Hans Sloane, Thomas Gale and in those of others.⁴⁵

After the devastating fire of 1666 that swept through London during the restoration period, new building types were sought. Therefore, Turkish architecture, along with those of various countries, was examined, and even some of its practices were adopted by British architects. Christopher Wren, who was at the Savilian Chair before Bernard, wrote a letter to North to find out how the great domes of Turkish mosques were built, and he did research for Wren and gathered some information about it.⁴⁶ It could simply be hypothesized that this interest and curiosity passed to Bernard.

It is known that Bernard conducted various studies regarding measurements in *De mensuris*. Interestingly, he was also curious about the geometric measurements of Hagia Sophia and those of Mimar Sinan's works. It is clear that he was informed by Ibn Ma'ruf about dome dimensions as well as geometric solutions

⁴⁴ Edward Bernard, *Catalogi librorum manuscriptorum Angliae et Hiberniae* (Oxoniae: E Theatro Sheldoniano, 1697), 397.

⁴⁵ Elisabeth Leedham-Green - David McKitterick, “Ownership: Private and Public Libraries”, *The Book in Britain: 1557-1695*, ed. John Barnard, D. F. McKenzie (Cambridge: Cambridge University Press, 2002), 4/338.

⁴⁶ Banu Bilgicioğlu, “16. ve 18. yüzyıllar Arasında Avrupa ve Osmanlı Münasebetleri Neticesinde Osmanlı ve Kültür Sanatının Avrupa Toplumu Üzerinde Gösterdiği Etkileşimlerden Bazı Örnekler”, *Sanat Tarihi Yılığ* 19 (2006), 101.

and carried out studies on the actual heights and diameter measurements of these domes.⁴⁷ Such examples can also be considered as signs that the perspective of specialization began to get established. However, before Bernard, William of Ockham [d. 1347] claimed that universals were fraudulent and real information was hidden in particulars. In this regard, the relationship between his claims and methodological transformation in Europe should be investigated. This attempt should be understood as subjectivity that emerged with the contribution of the operational requirements of the age. On the other hand, one cannot speak of a major development in terms of the specialization of education in the Ottoman State unlike a higher degree of it in Europe. The state had a system that progressed on its own, and it is understood that it was rather undesirable to follow a path other than this. A European-style specialization partially emerged in the 19th century.

Conclusion

Undoubtedly, one cannot speak of the tendency to refer to the decline of the state, which is a commonly used description for the Ottoman State. However, there were definite signs that education in European universities had evolved since the 16th century. Universities, which became almost national after the reform, paved the way for the development of the intellectual climate, indirectly though. The Reform, which emerged as a religious movement, led decent education and knowledge of language to become essential assets. Language sciences, which primarily developed as a scientific instrument, later assumed a role that supported both religious and technical research. The most important task in this transformation was perhaps undertaken by authentic university chairs and academies.

This is an outcome of mere scientific curiosity as explained earlier, but it is also necessary to consider two other potential reasons. The first of these should be an attempt to protect material cultural assets. A particular manifestation of catalogue curiosity was keeping a record of and preserving manuscripts and printed books that had been rapidly increasing in number since the 16th century. The second and more important issue was the rapidly increasing collection of material assets belonging to non-European cultures and the accumulation of related knowledge. Catalogues should be considered as a part of the efforts to classify the accumulated knowledge. This is because it is necessary to take a look at the establishment of causality at the time within the context of catalogues. Kâtib Çelebî's curiosity is more personal and spontaneous. This seems easily predictable, given the emergence of his famous work and the time required to produce it. Such an intense curiosity about diverse topics, ranging from geography to astronomy and from catalogues to fiqh is undoubtedly something personal. It should be noted that psychological, cultural and surely political developments had a great impact on his attempts. It would be correct to argue that the continual wars in the Mediterranean and the curiosity about Europe at least led to an interest in geography and history books. While it was possible for Bernard to seek help from his friends and to consult colleagues working on similar issues and to lay the groundwork, Çelebi was deprived of similar opportunities.

Therefore, lastly, teamwork was an apparent characteristic in Western scholars. In general, scholarly studies, including those of Bernard, were carried out in this way, and people working on similar interests communicated with each other. Mehmet İpşirli aptly elucidated this. According to İpşirli, "*upon comparing the curiosity and knowledge of orientalist, who were contemporaries of Kâtib Çelebî, about the East with those of Kâtib*

⁴⁷ Alpay Özduran, "Sinan's Arşin: A Survey of Ottoman Architectural Metrology", *Muqarnas* 15 (April 1998), 102.

Çelebi about the West, one could recognize that Çelebi remained somewhat shallow." The main reason for this is not Kâtib Çelebi's incompetence. The interest of the orientalists in the East was not based on personal aspirations but on a consistent and systematic infrastructure, whereas the interest of Kâtib Çelebi was afflicted with poor infrastructure and was something personal in its nature."⁴⁸

References

- Adivar, Abdülhak Adnan. *Osmanlı Türklerinde İlim*. İstanbul: Remzi Kitabevi, 4. Edition, 1982.
- Beckett, William. *A Universal Biography: Including Scriptural, Classical, and Mythological Memoirs, Together with Accounts of Many Eminent Living Characters the Whole Newly Compiled and Composed from the Most Recent and Authentic Sources*. 1Vol.. London: Mayhew, Isaac, and Co., 1834.
- Bernard, Edward. *Catalogi librorum manuscriptorum Angliae et Hiberniae*. Oxoniae: E Theatro Sheldoniano, 1697.
- Bilgicioğlu, Banu. "16. ve 18. Yüzyıllar Arasında Avrupa ve Osmanlı Münasebetleri Neticesinde Osmanlı ve Kültür Sanatının Avrupa Toplumunu Üzerinde Gösterdiği Etkileşimlerden Bazı Örnekler". *Sanat Tarihi Yıllığı* 19 (2006), 91-132.
- Cormack, Bradin – Mazzio, Carla. *Book Use, Book Theory: 1500-1700*. Chicago: University of Chicago Library, 2005.
- Flood, Raymond – Fauvel, John. "John Wallis". *Oxford Figures: Eighth Centuries Of the Mathematical Sciences*. ed. John Fauvel vd.. 115-140. Oxford: Oxford University Press, 2. Edition, 2013.
- Faroqhi, Suraiya. *Osmanlı Tarihi Nasıl İncelenir: Kaynaklara Giriş*. trans. Zeynep Altok. İstanbul: Tarih Vakfı Yurt Yayınları, 1999.
- Forbes, Eric Gray vd.. *The Correspondence of John Flamsteed: First Astronmer Royal: Volume Two 1682-1703*. Bath: IOP Publishing Ltd., 1997.
- Goodrich, Thomas. "Osmanlı Haritacılığı 1450-1700". *Doğumunun 400. Yıl Döneminde Kâtip Çelebi*. ed. Bekir Karlığa, Mustafa Kaçar. 127-141. Ankara: Kültür ve Turizm Bakanlığı, 2012.
- Gökyay, Orhan Şaik. "Katip Çelebi: Hayatı-Şahsiyeti-Eserleri". *Katip Çelebi: Hayatı ve Eserleri Hakkında İncelemeler*. 3-90. Ankara: Türk Tarih Kurumu, 1957.
- Gökyay, Orhan Şaik. *Katip Çelebi*. Ankara: Kültür ve Turizm Bakanlığı, 1986.
- Gökyay, Orhan Şaik. "Kâtib Çelebi". *Türkiye Diyanet Vakfı İslâm Ansiklopedisi*. 25/36-40. Türkiye Diyanet Vakfı, Ankara, 2002.
- Grafton, Anthony. *Defenders of the Text: The Traditions of Scholarship in an Age of Science: 1450-1800*. Cambridge: Harvard University Press, 1994.

⁴⁸ Mehmet İpşirli, "XVII. Yüzyılda Batı'ya Açılan Geniş Bir Pencere: Kâtib Çelebi", *Doğumunun 400. Yıl Döneminde Kâtip Çelebi*, ed. Bekir Karlığa (Ankara: Mustafa Kaçar, Kültür ve Turizm Bakanlığı, 2012), 327.

- Hunter, Michael Cyril William. *Science and the Shape of Orthodoxy: Intellectual Change in the Seventeenth Century Britain*. Suffolk: St. Edmundsbury Press Ltd., 1995.
- Hutton, Charles vd.. *The Philosophical Transactions of the Royal Society of London, From Their Commencement, in 1665, to the Year 1800, Abridged, With Notes and Biographic Illustrations*. 3. Vol.. London: C. and R. Baldwin, 1809.
- İhsanoğlu, Ekmeleddin. *Osmanlılar ve Bilim: Kaynaklar Işığında Bir Keşif*. İstanbul: Etkileşim Yayınları, 3. Edition, 2010.
- Kâtib Çelebi. *Mîzânü'l-hakk fi ihtiyâri'l-ehakk*. [s.l.]: Tasvir-i Efkar Gazetehanesi, 1280.
- İpşirli, Mehmet. "XVII. Yüzyılda Batı'ya Açılan Geniş Bir Pencere: Kâtib Çelebi". *Doğumunun 400. Yıl Döneminde Kâtib Çelebi*. ed. Bekir Karlığa, Mustafa Kaçar. 323-330. Ankara: Kültür ve Turizm Bakanlığı, 2012.
- Kutluer, İlhan. "Keşfü'z-zünûn: Klasik Bilim Geleneğimizin Büyük Atlası". *Vefatının 350. Yılında Kâtib Çelebi*. ed. Sait Öztürk. 61-89. İstanbul: İstanbul Büyükşehir Belediye Başkanlığı Kültürel ve Sosyal İşler Daire Başkanlığı, 2007.
- Leedham-Green, Elisabeth – McKitterick, David. "Ownership: Private and Public Libraries". *The Book in Britain: 1557-1695*. ed. John Barnard, D. F. McKenzie. 4/323-338. Cambridge: Cambridge University Press, 2002.
- Littleton, Charles G. D.. "Ancient Languages and New Science, The Levant in the Intellectual Life of Robert Boyle". *The Republic of Letters and the Levant*. ed. Alastair Hamilton vd. 151-172. Leiden: Brill, 2005.
- Loop, Jan – Hottinger, Johann Heinrich. *Arabic and Islamic Studies in the Seventeenth Century*. Oxford: Oxford University Press, 2013.
- Morgan A. de. "Oxford Edition of Pappus". *Notes and Queries: A Medium of Inter-Communication for Literary Men, Artists, Antiquaries, Genealogists, etc.* 2. Vol. 227-228. London: Bell and Daldy, 1856.
- Norris, H. T.. "Edmund Castell and His *Lexicon Heptaglotton* (1669)". *The 'Arabick' Interest of the Natural Philosophers in Seventeenth-Century England*. ed. A. G. Russel. 70-87. Leiden: E. J. Brill, 1994.
- Özduran, Alpay. "Sinan's Arşın: A Survey of Ottoman Architectural Metrology". *Muqarnas* 15 (April 1998), 101-115. <https://doi.org/10.1163/22118993-90000411>
- Pakalın, Mehmet Zeki. *Osmanlı Tarih Deyimleri ve Terimleri Sözlüğü*. İstanbul: Milli Eğitim Bakanlığı, 4. Edition, 1993.
- Petrina, Alessandra. *Machiavelli in the British Isles: Two Early Modern Translations of the Prince*. Farnham: Ashgate Publishing Ltd., 2009.
- Rigaud, Stephen Jordan. *Correspondence of Scientific Men of the Seventeenth Century: Including Letters of Barrow, Flamsteed, Wallis, and Newton*. Oxford: The University Press, 1841.
- Russel, G. A.. "Introduction". *The 'Arabick' Interest of the Natural Philosophers in Seventeenth-Century England*. ed. A. G. Russel. 1-19. Leiden: E. J. Brill, 1994.

- Stephen, Leslie – Lee, Sidney. *The Dictionary of National Biography: From the Earliest Times to 1900*. 2.Vol.. London: Oxford University Press, 1917.
- Ülken, Hilmi Ziya. “Katip Çelebi ve Fikir Hayatımız”. *Katip Çelebi: Hayatı ve Eserleri Hakkında İncelemeler*. 177-193. Ankara: Türk Tarih Kurumu, 1957.
- Wakefield, Colind. “Arabic Manuscripts in the Bodleian Library”. *The ‘Arabick’ Interest of the Natural Philosophers in Seventeenth-Century England*. ed. G. A. Russell. 128-146. Leiden: E. J. Brill, 1994.
- Wilson, Harry Bristow. *The History of Merchant-Taylor’s School: From Its Foundation to the Present Time*. London: [s.n.], 1814.
- Yurtoğlu, Bilal. *Katip Çelebi*. Ankara: Atatürk Kültür, Dil ve Tarih Yüksek Kurumu Atatürk Kültür Merkezi, 2009.