



# The Contribution of Huseyin Vasfi Efendi from Plovdiv to Ottoman Technological Literature

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**Abstract.** In this paper, *History of Production, Inventions and Discoveries by Mankind* (1888), written by Huseyin Vasfi Efendi from Plovdiv where in Bulgaria today, will be presented and evaluated in terms of the history of machinery and technology of the Ottoman Empire. In this book, only inventions, discoveries and innovations are listed chronologically; their technical specifications are not disclosed. Written by the Ottomans at the end of the 19th century, this work has been studied with the idea that it can shed light on the Ottomans' understanding of industrialization and technology, despite the Europeans who lived and realized the industrial revolution earlier.

**Keywords:** Huseyin Vasfi · History of discoveries · Ottomans' technological understanding

## 1 Introduction

In this paper, information about technology, especially about machines, will be determined in Huseyin Vasfi bin Ahmed Hulkî Filibevis work titled *Târih-i İ'mâlât ve İhtirâ'ât ve Keşfiyât-ı Beşeriye* (History of Mankind's Production, Inventions and Discoveries) written in 1888 [3; Fig. 1] and will be evaluated in terms of the history of machinery and technology of the Ottoman Empire.

Our writer Huseyin Vasfi Efendi is from Plovdiv. Plovdiv is the second most important city in Bulgaria after Sofia today (Fig. 2). It was one of the important centers in the Balkans during the Ottoman rule. This importance was due to its cultural assets and the scholars who grew up there. Governor of Rumelia, Lala Şahin conquered this place for the first time in 1361. Bulgaria was subjected to the Ottomans for nearly 500 years. In Rumelia it was a general Ottoman method to take young boys and girls from their families and make them Ottomans. These young apostates, whose background was probably influenced by the most advanced centers of Europe due to geographical and cultural proximity, played an important role in introducing modern sciences to the Ottomans. However, Huseyin Vasfi did not have any relationship with Bulgaria after that. In 1885, the newly established Bulgarian Principality captured Plovdiv. Thereupon, most of the Turkish population here emigrated [6].

Very little is known about the life of Huseyin Vasfi Efendi from Plovdiv. He probably settled in Istanbul when Plovdiv fell into the hands of the Bulgarians or at an earlier date. He is mentioned with his two books in the references. He gave information about his profession in the preface of these works. Accordingly, he was the clerk of the indictment committee in the appellate court of the supreme Ministry of Justice [4, p. 3].

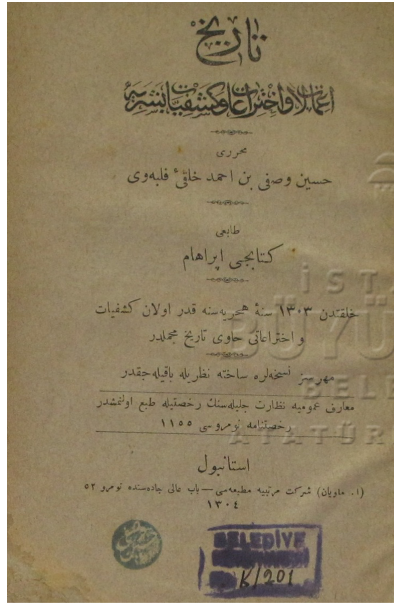


Fig. 1. The cover page of *History of Production...*

One of his books is called *Esile ve Ecvibe-yi Hikemiye Yahut Tenvîr-i Efkar* (Questions and Practical Answers or Clarification of Ideas) and is about ethics. It consists of 67 pages. The name of this work is mentioned in the studies on ethical books in the Ottomans [For example; see 1, p.175, and 2].

Two editions of the work that we will examine here have been reached. Although their publication years and numbers of page are different, the content is the same, only the 1305 edition contains (152 pages) a list of errors. Our text on which we depend in this paper is consisting of 109 pages [3]. Existing of two editions of this book shows its popularity.

Among the simple machines and devices mentioned in this book are water and windmills, clocks (with alarm and pendulum), steamboat, knives, hammer, axes, surveying instruments. Apart from these mechanisms, all kinds of innovations related to science, technology and culture (such as the Great Wall of China, electricity and magnet, galvanometer, sewing machine, guns and their kinds, towers, some historical bridges, etymology for the word of Spain) are mentioned.

When another similar book, *Inventions and Discoveries* (Hijri 1298/AD. 1881) by M. Naim, written just before Huseyin Vasfi's book, is examined, it is seen that it is not the



**Fig. 2.** Plovdiv in the map.

same in style. The subjects examined in this 76-pages of book are determined as mill, clock, steam power (steam-railway-etc.), compass, glass-mirror-binoculars, weapons, paper, measuring air, measuring temperature, balloon, lighting, electricity, telegraph, printing press, and camera [8]. Information about these is given beyond the encyclopedic nature. So it surely can be concluded that our writer (Huseyin Vasfi) did not influenced from this book.

## 2 History of Mankind's Production, Inventions and Discoveries

In the book, the inventions are listed chronologically, and a little more information is given about the relevant invention by opening parentheses in almost every article. The dates are grouped into three categories. The author explained this as a warning: It was divided into three classes, first creation date (actually it is a Jewish history in which the year of 2000 corresponds to 6800), second Christian era and third hijri calendar, and inventions were written in order according to these three classes [3, p. 3].

In the foreword, the author, after praising Sultan Abdulhamid Han II, the sultan of the time, and explaining that it is our duty to pray for the Sultan, who is trying to bring the Ottomans to a high position between European states and civilized nations, he says that he attempted to write this book in the hope of helping the sultan in his good works.

Here, we will give some simple tools and machines among the chronologically listed inventions in the book. The criteria in the selection of these tools and machines were determined to be comprehensible in the Ottoman text and to be compatible with the universal knowledge about these tools.

For example, the invention of the steamboat is mentioned. According to the history of creation in 2241, Prophet Noah built and invented ships. According to the detailed information given in parentheses, Denis Papin developed the steamboat by inventing a steam engine in Hijri 1114/AD 1705. The American Fulton also improved it and made his trial on the Seine River in Paris in Hijri 1218/AD 1803 [3, p. 8].

Later, he talked about the submarine ferry on this subject. An electrically powered submarine steamer named “Nautilus” was invented in England in Hijri 1303/AD 1798 (As far as we know, this was the first available submarine in the world). According to the details given here, this submarine was the most perfect ever built. It had two propellers and two rudders, and its electric power was sufficient to travel eighty miles [3, p. 107–108].

As a subject related to navigation, the compass used on ships was found in Andalusia in Hijri 683/AD 1284. According to the information given in parentheses, the compass was invented in China in AD 565 and brought to Europe by the Arabs [3, p. 78].

As related to land transport tramway is explained. Tramway was built in Istanbul in Hijri 1288/AD 1871. According to the information in parentheses, in Hijri 1290/AD 1875, the “tunnel” in Istanbul, that is, the underground tram, which moves with a belt, was put into use in Galata [3, p. 106].

Of course this tramway was not the first; however it is interesting to see that our writer is pointing to the constructing of a new vehicle in his country without mention its first appearance in England.

This tram was powered by two steam engines and by connecting the Galata Bridge to Pera Hill (Beyoglu today), it saved people from climbing uphill on steep streets where vehicles could not enter. The idea came from Eugène Henri Gavand, a French civil engineer. The “tunnel”, nicknamed the “rat hole” by the city dwellers, was one of the oldest (actually second) and shortest European subways [10, p. 435].

Yet he has mentioned the invention and construction of the railway. Accordingly the railroad was invented by British engineer George Stephenson in Hijri 1230/AD 1814. According to the information in parentheses, a railway was built from Manchester to Liverpool for the first time in Hijri 1240/AD 1830 [3, p.104; 7, p. 330].

According to the date of creation, in 4070, the car was first invented as a two-wheeler in the city of Rome. According to the information in parentheses, this car was an ox cart. Four-wheeled ox carts were introduced by the famous French ruler Thierry (III) in AD 680. A type of car was invented, which later took the name Carl, and some masters called “sîrak” practiced their art with them, even in Istanbul. Some horse-drawn carriages with the names of phaetons and cups were also revealed in Hijra 1205/AD 1790 [3, p. 19].

One of his most concerned about devices is clocks. According to the date of creation in 5432, a water-powered alarm clock was invented in Rome. According to the information given in parentheses, this clock was used in the city of Rome; the current alarm clocks, on the other hand, were invented in Baghdad in Hijri 175/AD 792, used in the palace of the famous Abbasid Caliph Harun Rashid, and one of them was sent to the King of France Charlemagne by Harun Rashid with the key of the Church of the Blessed Grave in Jerusalem. The pocket watch was found in Hijri 922/AD 1516 [3, p. 44; it is said that this was a clepsydra, see; 5, p. 475].

On the other hand, a type of pendulum clock was invented in Italy in Hijri 304/AD 917. According to the information given in parentheses, Huygens, one of the famous scholars, applied the pendulum to the hanging clocks and found the use of the spring in the clocks in general [3, p.68].

As to the scientific instruments, in Hijri 1049/AD 1639, the “barometer”, that is, the air measuring instrument, was invented in Florence, Italy, by docente universitario

Torricelli. According to the information in parentheses, the famous Cavendish later improved this instrument and brought it into its current form. Saussure, one of the scientist, found the device that measures the amount of expansion and moisture present in the air, and Hauksbee invented the air discharge device for evacuating the air in Hijri 1116/AD 1704 [3, p. 88].

As to the telescope, it was invented by the Dutchman Zacharias in Hijri 1175/AD 1761. According to the information in parentheses, the spectroscope instrument was also invented by applying it. Zacharias discovered that there are more than 1500 comets in the sky. Mentioning that these comets move in all directions in the planetary region and that the comet “peyl” passes so close that it leaves part of the Earth’s orbit in a cloud, he said, “There is no doubt that the Earth will collide with one of them one day.” Indeed, on the 29th day of October in the year Hijri 1278/AD 1832, a comet named “Gâmbâr” circulated 10 million billion meters away from the orbit of the Earth, but this star completed its cycle once every seven years. Wilson, one of England’s master astronomers, discovered that each of the spots seen with a telescope on the surface of the Sun consists of a dark pit several thousand miles deep in Hijri 1185/AD 1771. Sometimes fragments of fire emanate from the surface of the Sun, reaching an altitude of 40 to 45 thousand miles. Although there were some volcanoes on the surface of the moon globe and Mercury in the past, they have completely extinguished and there are no volcanoes other than these extinct mountains in these spheres. Although the volcanic mouths on Earth only disappear and flatten over time, the fire-spreading mouths in them always maintain the state they opened. Some scholars have also discovered that there is some steam and fragments on the surface of Mars, and even that the white spots on it are snow. Newton, one of the famous English scholars, discovered that all inanimate objects in the air are suspended in the air and are in balance without ever falling by the mutual forces attracting each other. British Chamberlaine, who recently thought that all diseases are caused by some small animals called microbes, mostly occurring in water consisting of two types of gas, invented a tubular microscope instrument for this purpose [3, p. 90–92].

The invention of the printing press was a major technological advance and as a forerunner of the Renaissance, our writer naturally mentions it. In Hijri 847/AD 1443, a man named Gutenberg in the city of Mainz in Germany manufactured letters from small pieces of wood with a person named Fust and invented the printing press in this way. According to the information given in parentheses, the art of printing was first discovered in the city of Beijing in China in Hijri 300/AD 913. The wooden letters invented by Gutenberg were developed by turning them into lead and then copper in Hijri 867/AD 1463. The famous lithograph was invented in Egypt in 1215/AD 1800. Printing was heard in Istanbul in 1130/1718, and the printing house was established in Hijri 1138/AD 1726 and in 1259/1843 two types of ta’lik (a style of Arabic script) and three types of naskh (a cursive style of Arabic calligraphy which most popular for and characteristic of the Arabic language) and two types of movable letters were invented in Istanbul by masters called engineers [3, p. 80].

Another matter related to the rise of Renaissance, gunpowder was invented in Andalusia in Hijri 41/AD 662. According to the information in parentheses, gunpowder was initially used by the Arabs who besieged the city of “Nepila”. In Hijri 741/AD 1341, Moroccan soldiers fired cannon with gunpowder during the siege of the castle called

“Tarife” and they invented this cannon in Hijri 762/AD 1361. Some European historians have said that the Arabs took gunpowder from the Chinese and spread it to Europe [3, p. 65].

As to the interesting invention, according to the date of creation in 5049, a scholar named Honkuçu (?) in the province of Chantuni (?) in China manufactured and invented a kind of shoe made of elephant skin. According to the information in parentheses, this person also invented a kind of sword by sharpening each side of the long bones very finely. On the other hand, shoes were found in the 17th century and later developed, and a very neat and soft kind of shoe was produced from snake skin in America. A shoe-making machine called “Neptune” was also invented in Europe [3, p. 33].

In Hijri 1062/AD 1652, the umbrella was invented by the famous British Robinson on an island where he was forced to live for twenty-eight years. According to the information in parentheses, the umbrella was subsequently improved in London. It was also spread in Istanbul in Hijri 1227/AD 1812 and a red one was first presented to Sultan Mahmud [3, p. 89].

Our writer also has been disregarded for the invention of telephone; in Hijri 1286/AD 1876, the famous American Graham Bell invented the telephone device. According to the information in parentheses, Bell carried out wireless communication via electric current between two ships placed two kilometers away and even established a telephone company in London [3, p. 106].

In Hijri 1180/AD 1766, photography, that is, the device of taking pictures with the help of light, was invented by the French people named Niepce and Daguerre. According to the information in parentheses, this instrument was later improved by the Swedish Schenil and this fine art was spread in Istanbul in 1277/AD 1860 [3, p. 93–94].

This book has a wide range of interest and arms of war were among them. According to the date of creation, in 2925, the iron mace (a mace used in battle) and sword and knife were invented by the famous Persian ruler Tahmuras. According to the information in parentheses, this ruler also found ways of riding on animals and loading things, and teaching his hawk and falcon birds to hunt. The hammer, ax and saw were invented by the ancient Mexicans [3, p. 12].

There are interesting issues within the book which are not machines, however these related to scientific approach and attitude. For example, according to the date of creation, in 5236, it was invented to use as a mirror by polishing silver and other metals in Egypt. According to the information in parentheses, the current mirror was invented in Venice in Hijri 923/AD. 1517. Glass, on the other hand, was first invented by the famous Phoenicians, who later found the crystal, from saltpeter. In Hijri 1118/AD 1706, the French King Louis (XIV) had a large and very clear mirror made in Paris with 114 fingers long and 67 fingers wide. This mirror is preserved in the Louvre palace in Paris today [3, p. 39–40].

As another example related to his own country, in AD 538, the astonishing wall surrounding the great city of Istanbul was built by Emperor Justinian to be safe from teasing by Bulgarian bandits by land and by other enemies than the sea. According to the information in brackets, unusual pictures were engraved and carved (decorated with paint) in some parts of this wall [3, p. 58].

In Hijri 905/AD 1500, King Ferdinand of Spain had a 17-m-high statue built with a cross decorated with diamonds, emeralds and rubies. According to the information in parentheses, this Ferdinand expelled the Jews living in Spain in Hijri 901 with the encouragement of his wife, and some of them preferred to settle in Thessaloniki. In 1047/AD 1637, they abolished their religion by being attached to Sultan Murat in Edirne [3, pp. 85–86].

As a last example, in Hijri 923/AD 1517, the shipyard in Istanbul was first built by the famous sultan, hardworking Sultan Selim. According to the information in parentheses, he also had the Anatolia Fortress built, and the admiralty, which means naval commander, comes from the word “emir-ul-ma” [3, p. 86].

### 3 Conclusion

It seems like an exaggeration to consider this book as a history of technology or machine book. It can be considered as an encyclopedic history of inventions written to inform Ottoman intellectuals at the end of the 19th century. As a matter of fact, in the last word of his book, the author states that he wrote this work in order to both serve his nation by giving a little bit of information about the progress of humanity, and to advise the young people of the country to work hard in order to complete these deficiencies in the country despite of having no his places at the education institutions such as universities, technical or professional schools [3, p. 109]. The author did not specify the reference or references. The information given in parentheses is completed with the verb “it is said”. As it can be understood from this, the author has arranged the information he gathered from some foreign books in chronological order. Although his education is unknown, it is reasonable to admit that he did not have a technical education, given that he was the author of another book on ethics and held the position of court clerk. In this case, it is natural that the author does not give technical information about the subjects he mentions.

Considering the political and military downsides of the Ottomans at the end of the 19th century, it is admirable that our writer, Huseyin Vasfi Efendi wanted to inform the Ottoman intellectuals and society of the history of technical developments in the world and in his own country, by writing such a book in the face of industrialized and world power Europeans. So he exposed his desire of progression in both scientifically and technically his country.

On the other hand, it is seen that some papers on philosophy of technology and machine had been published in Ottoman literature by the time in first quarter of twentieth century. One of the most remarkable among them is the translation of *Apologie der Technik* by Richard von Coudenhove-Kalergi who was an Austrian- Japan politician and philosopher, (Leipzig 1922), translated to Turkish by engineer Bekir Sitki [9]. This book is about the philosophy of technology. Apart from that with some papers the discussions on technology and machine had been continued: “Machine and Life of Thinking” by Mustafa Şekip Tunç (1927), “La Rançon du Machinisme” by Jean Gallotti (1931), and “Let us Perform the Machine, It will Save the Humankind” by Roger Franq (1932).

Consequently *the History of Mankind's Production, Inventions and Discoveries* which I have studied here, may have contributed to the setting in which this technology and machine discussion takes place.

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