

ORIGINAL
ARTICLE

**Asclepiades of Bithynia (1st - 2nd Century BC)
Atomic Theory in Caelius Aurelianus (5th
Century AD) Work on Acute and Chronic
Diseases**

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Abstract

Asclepiades of Bithynia (2nd half of the first century to the 1st half of the second century BC) was a physician and a philosopher who was influenced a lot by Epicurus (341 – 270 BC); however, he managed to form his own medical theory. Very helpful to understand the medical theory of Asclepiades of Bithynia is the Latin translation of Soranus of Ephesus (2nd half of the first century to 1st half of the second century AD) work on acute and on chronic diseases by Caelius Aurelianus (5th century AD). Asclepiades of Bithynia medical theory was applied to the interpretation of many different diseases, in which the physician combined the principles of Methodic School which was about the stretching and narrowing of pores, with those of humoral pathology and the principals of Pneumatic School.

Key words: Asclepiades of Bithynia, Soranus of Ephesus, Caelius Aurelianus, Atomic Theory

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Introduction

Caelius Aurelianus (5th century AD), the Roman physician, has remained well known in the medical bibliography as a translator in the Roman language of the famous work of Soranus of Ephesus (2nd half of the first century to 1st half of the second century AD) on acute and chronic diseases.¹ Although we cannot be absolutely sure how exact the initial work of Soranus was and which additions Caelius Aurelius made², there is a strong belief in which the main body of the work is based on the Greek original work³. The view that the translated work is mainly based on the original one of Soranus of Ephesus is probably confirmed by the fact that in the Latin translation, a plethora of historical information related to the views of other ancient Greek physicians is saved, as it is observed in the rest of the original works of Soranus of Ephesus which have been saved until today (see *Gynaeciorum libri iv, de signis fracturarum, de fasciis, vita Hippocratis secundum Soranum*)⁴. That is why the value of this translation in Latin does not only lie in the presentation of Soranus of Ephesus medical way of thinking, but it is also a major historical source on ancient Greek medicine.

Materials and Methods

In this translated work, we are given the chance to comprehend the views on the atomic theory of Asclepiades of Bithynia (2nd half of the first century to the 1st half of the second century BC), who will be mentioned plenty of times in this work. We should not forget that Soranus of Ephesus is the most important member, although not the founder of Methodical School⁵ who embodied the concept of stereopathology in ancient times, while Asclepiades of Bithynia even though embraced the basic principles of the Methodical School in which his student Themison of Laodikeia⁶ founded (2nd -1st century BC), he did not confine himself to those but accepted the influence from other ancient schools of medical thought⁷. This fact alone might have emphasized the scientific debate of the times and triggered relevant observations by Soranus of Ephesus, as they are saved in the Latin translation of Caelius Aurelianus.

Outlining Asclepiades of Bithynia views and having as a compass the Latin translation, we will initially focus on the analysis of Phrenitis. There, specifically in the distinct section that is devoted by Caelius Aurelianus and indirectly by Soranus of Ephesus, as a reply to Asclepiades of Bithynia

- 1- Drabkin, 1950: 1-1002.
- 2- Urso, 1997: 1-166.
- 3- Van der Eijk, 2005: 299-327.
- 4- Ilberg, 1927: 1-282.
- 5- Tecusan, 2004: 1-810.
- 6- Nutton, 2003: 302.
- 7- Vallance, 1990: 1-160.



related to the cause of Phrenitis presents the basic dogma of Asclepiades of Bithynia medical theory. It is mentioned that the basic axiom of Asclepiades of Bithynia and his followers was that atoms comprise the ground substance of the human body and are not characterized by the typical qualities of things. Nevertheless, these are always in combination with each other and in eternal motion. When these atoms collide one against another inside the human body, they are divided because of the collision in numerous little pieces of various sizes and shapes, while moving (here the author does not specify if it is about the atoms or the pieces of them) in groups, they create aggregations of various shapes and sizes, that is why Asclepiades of Bithynia concludes that it is not irrational for someone to assume that because of it, they do not have the usual quality characteristics. The basic concept of stereopathology, which we can say is the basic principle of the physiology of the human body as Asclepiades of Bithynia understood, will form the main guide for the interpretation of the causes of diseases. Meaning that according to the perceptions of the pathophysiology of the medical school represented by this physician, the majority of diseases had their causes either in the presence of an obstacle in the movement of the atoms due to their sizes or shapes or their excessive speed during movement, or because of a restriction in the path where the atoms move. It will be emphasized though that not all diseases have as sole cause the difficulty of atom movement. This difficulty was the cause of severe diseases like Phrenitis, Lethargy, Pleurisy and high fevers. On the contrary, for milder diseases, he claims that they are caused by disorders of body liquids and of the air in the body and the air of the breath⁸.

Results

In several parts of Caelius Aurelianus work, we will become aware of Asclepiades of Bithynia views on the causes of different diseases in which he applies his theoretical views described earlier. The formal application of Asclepiades of Bithynia basic atomic theory is observed in the interpretation of Phrenitis. This physician believed that the disease is due to the painless prevention or infraction of the atom movement in brain membranes, which was supplemented with the loss of logic and fever⁹. Very interesting is that Caelius Aurelius will quote that part of Asclepiades of Bithynia followers believed that the reference 'membranes' in the plural

8- Drabkin, 1950: 66-69.

9- Drabkin, 1950: 4.



number was not random but it meant that the physician included all brain membranes and not just one, which would have a part in the appearance of Phrenitis, distinguishing them from those of the spinal cord believing that those did not cause this disease¹⁰.

We will see the same way of thinking in other interpretations of diseases too. Thus Diarrhea, according to Asclepiades of Bithynia, is an acute excretion or glow from lower parts of the colon like the rectum. This flow is a result of an overconcentration, of a crowding of atoms¹¹. It is even mentioned from Caelius Aurelius that Asclepiades of Bithynia in his book Definitions determined that Cholera is the excretion of liquids from the stomach and the small intestine which is acute, short in length and is the result of the prevention or infraction of atoms presenting themselves for the first time as indigestion¹². It is also highlighted that the infraction of liquids from the stomach in case of diarrhea is the reason why Asclepiades of Bithynia followers distinguish the disease from Diarrhea which is founded on the fact that liquid infraction comes only from the colon¹³.

We will also meet a corresponding way of thinking in the view for the cardiac disease of Asclepiades of Bithynia followers, which will most definitely reflect the views of the chief of this medical sect. They believed that cardiac disease is an inflammation of the heart area which is caused by prevention or infraction of atoms¹⁴.

Nevertheless, there will be differentiations. Asclepiades of Bithynia considers the cause of Bulimia to be the distention of the atom passing to the esophagus and to the stomach. The feeling of faint that goes along with the uncontrollable loss of human liquids and the weakness is the result of the pass distention. Dropsy is caused by the piercing of a type of small conductor in the flesh capable of converting food into the water. Daily fever is caused by the existence of a barrier of the biggest in size atoms even though they can be quickly dismissed, they quickly fill in the gap again. On the contrary, tertian fever is caused by the existence of a barrier in smaller-size atoms, while quartan fever on an obstacle in the smallest-in-size atoms which only in great difficulty can fill in the passage and are withdrawn again¹⁵.

Conclusion

In conclusion, as the information is saved indirectly via

- 10- Drabkin, 1950: 4-5.
- 11- Drabkin, 1950: 438-439.
- 12- Drabkin, 1950: 416-419.
- 13- Drabkin, 1950: 420-421.
- 14- Drabkin, 1950: 242-243.
- 15- Drabkin, 1950: 68-69.



Caelius Aurelianus Latin translation of Soranus of Ephesus book on acute and chronic diseases, we could express the belief that although Asclepiades of Bithynia was influenced a lot by Epicurus¹⁶, he created a medical school of thought which was based on atom theory but combined with the views of other medical sects. He combined the principles of the Methodic School which was about the stretching and narrowing of pores, with those of humoral pathology¹⁷ and the principals of Pneumatic School¹⁸, talking about the disorders of liquids and of the air in the body (air of the breath); even though latter disorders were limited in milder diseases. Finally, we could conclude that the atomic theory of Asclepiades of Bithynia was associated with the views of Pre-Socratic philosophers who sought to raise the macrocosm in the microcosm, while the ultimate goal of this physician was to discover the correlations of molecules composing the human body, in order to describe their actions in the appearance of diseases.

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16- Leith, 2012: 164-191.

17- Schöner, 1964: 1-114.

18- Wellmann, 1895: 1-237.



Wellmann M. [*Die Pneumatische Schule. Bis auf Archigenes in ihrer Entwicklung dargestellt*]. Berlin: Weidmann. 1895. [in Deutch]

