



Ptolemy's Thought Experiment?

Commentary on astrology according to epigenetics

Key words: astrology; natal horoscope; epigenetics; genetics; DNA; methylation; environment; human development; thought experiment; determinism; free will; quantum indeterminacy; controlled variables; independent variable; dependent variable; general and special epigenetic theories of astrology; Cicero, Ptolemy, Ezra, Sahl, Morinus, Selva, Weiss.

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A *thought experiment* is one through which a hypothesis is established that cannot be verified empirically but only theoretically. It is, therefore, a resource of the imagination exclusive to the human species whose purpose or objective is to investigate the nature of a matter or an aspect of reality. Hence, they are common in the fields of philosophy and physics, but also in law. Although we find ourselves before an experiment that cannot be conducted, its consequences are extremely relevant to verify a theory. Let us think, for example, of **SCHRÖDINGER's cat** (1935), which is alive and dead at the same time, or of ALBERT EINSTEIN's (1935) **quantum entanglement (EPR Paradox)**, according to which two apparently independent entities located at millions of light-years away could be inextricably linked. BOHR and EINSTEIN frequently debated the theoretical integrity of one of the most challenging aspects of quantum mechanics: its counterintuitive nature or characteristic indeterminacy, which will become important further on¹.

Long before the development of physics at the hands of EINSTEIN and SCHRÖDINGER, BOHR and PLANCK, among others, there was a man who seems to have sketched out a possible thought experiment. We are referring to the author of the *Tetrabiblos* (astrology) and the *Almagest* (astronomy), CLAUDIUS PTOLOMAEUS (2nd century AD). Before moving to the passage attributed to him, where what could be the thesis of a thought experiment is presented, let us see, preliminarily, other passages.

[...] Nor, further, should we gropingly and in human fashion demand everything of the art, but rather join in the appreciation of its beauty, even in instances wherein it could not provide the full answer; and as we do not find fault with the physicians, when they examine a person, for speaking both about the sickness itself and about the patient's idiosyncrasy, so too in this case we should not object to astrologers using as a basis for calculation nationality, country, and rearing, or any other already existing accidental qualities.²

¹ See an article of ours on this. Bustamante, D. (2023). *Quantum Indeterminacy in Morin de Villefranche?* Recovered from: <https://www.sagittariusdb.com/reflexion/quantum-indeterminacy-in-morin-de-villefranche/>

² Ptolemy, C. (1940). *Tetrabiblos*. Harvard University Press. Loeb Classical Library. Boston, Massachusetts. p. 19.

One must ask: can culture and the political administration of the country in which the individual is born and raised, the social class to which he belongs or the environmental circumstances of the earthling in general play an equally important role as that of the stars that preside over the birth? PTOLEMY adds:

*For if the seed is generically the same, human for example, and the condition of the ambient the same, those who are born differ much, both in body and soul, with the difference of countries. In addition to this, all the aforesaid conditions being equal, rearing and customs contribute to influence the particular way in which a life is lived.*³

He would seem to refer to the “terrestrial factor” of which German doctor and astrologer ADOLF WEISS (1946) spoke about in his book (1935) when citing another author, famed researcher ARTHUR HERRMANN VLÈS (1861-1952), better known by his pseudonym, HENRI SELVA, founder of a short-lived magazine, *Le Déterminisme Astral* (1904-1905), who was even more specific, critical, or scientific in this regard. WEISS explains (p. 240):

*Aristotle, with his aphorism «Sol et homo generant hominem», has already alluded to this question. Of the modern authors, Selva is the one who, in my opinion, achieved the most convincing formulation, and which I will reproduce here. Selva says: «It is obvious that the same astral factor combined with different terrestrial [i.e. environmental] factors will have to produce different results. The astral factor is quite complicated, but the terrestrial one is even more so. Consequently, combinations of almost unlimited variety arise».*⁴

According to PTOLEMY, not only is it also necessary to take social and family circumstances into consideration, but he would accuse those who do not consider it so of being naive, as he adds:

Unless each one of these things is examined together with the causes that are derived from the ambient [...] they can cause much difficulty for those who believe that in

³ Ibid. p. 17.

⁴ Unlike other quotes from Selva that will appear towards the end of this essay, this time we were unable to find the original (French). We have extracted it from Weiss's work. See Weiss, A. (1993). *Astrología Racional*. KIER. Buenos Aires. p. 240.

*such cases everything can be understood [...] from the motion of the heavenly bodies alone.*⁵

Thus, for this Egyptian, the following was only clear, and it is here wherefrom the thought experiment that we will describe in detail later follows:

*Should you find Jupiter elevated, first you ought to determine if the birth chart belongs to that of a prince or to that of a peasant; should it be the former, you will judge he will be king; should the latter, a merchant.*⁶

Aforementioned author HENRI SELVA, in turn, seems to agree (according to WEISS):

*Among the various elements that make up the totality of the terrestrial factor, what draws attention [...] are the influences that cooperate in the origin and growth of the human being [...] these influences are the biological environment [...] family, the professional, social, ethnological, political, and national environments, among others. [...] Hence, the result of the action of the terrestrial factor can only be understood, broadly, as a suitable possibility to confirm, reinforce, or weaken the characteristic probabilities of the astral factors.*⁷

If this is so, not everything would necessarily be predetermined, as EINSTEIN believed and many astrologers still consider, especially the traditionalists, nor did genetics turn out to be as simple as MENDEL described it in 1866, and PTOLEMY, it seems, was not the only one to be aware of it long before the development of modern science. If being an astrologer or treating a person through birth chart-assessment is like being able to look into their most natural potential, that is, like reading a full genetic work, it then should not surprise if more judicious ancient astrologers would have reached the same conclusions that geneticists have reached today in regard to the gene-environment (birth chart-society) interaction. The Andalusian astrologer **ABRAHAM IBN EZRA** (12th century), better known as BEN EZRA, points out (p. 85):

⁵ Ibid. p. 19.

⁶ The passage in question does not seem to appear in the *Tetrabiblos*, and is as likely to have come from Ptolemy as from any of the Arabian astrologers. We will clarify this soon as we move forward.

⁷ See Weiss, A. (1993). *Astrología Racional*. KIER. Buenos Aires. pp. 240-241.

[the astrologer] needs to know to which nation the native belongs [...] Likewise, if he [the astrologer] finds that Saturn is in the ninth in a Jew's nativity, it does not signify that the native will be weak in his religious belief, but it does [...] in the nativity of an Ishmaelite. [...] If the native was born in Ethiopia, even though Venus and the Moon are in the ascendant degree, we will not judge that the native will be as handsome and white as persons in other climates, but only compared to the form and figure of persons of the same climate. Likewise, if Mercury is the ruler of the nativity, we shall not judge that will be a great scholar in various sciences, inasmuch as it is impossible for there to be a scholar in Ethiopia because of the intense heat of the Sun. As a result, their temperament is not balanced; we should judge only that he may be more intelligent than his countrymen.⁸

Although he exhibits racial and creedal prejudices, it is still true environmental variables are considered, which, in prejudice-free cases, is valid. Think, for example, of the physical build of some races, or their height. Should Sagittarius ascend in the birth of an indigenous person from Central or South America, and Jupiter, ruler of said segment of our ecliptic, does not deny the characteristics inherent in the sign, we would not judge that he will be taller than the average world population, but rather than the average Central or South American indigenous population.

Distinguished academic SHLOMO SELA, translator, and critic of EZRA's work, explains (pp. 31, 33):

*[...] Ezra transforms the native's national or religious affiliation into a powerful principle that overrides the individual fate signified by the natal horoscope." and "[...] transforms the terrestrial climates—the seven latitudinal bands that cover the entire inhabited part of the earth—into a powerful factor that exerts a **more powerful influence than the natal horoscope**. Here, Ezra is addressing a well-known weakness of astrology, highlighted by Cicero in his attack on astrology [...]*⁹

In his work on the principles of astrological delineation with regard to both questions and births, Mazandaran Christian astrologer, astronomer, and

⁸ Although the Spanish translation is ours, we rely on Shlomo Sela's (Tel Aviv University) translation. See bilingual edition, ibn Ezra, A. (2014). *Abraham Ibn Ezra on nativities and continuous horoscopy: a parallel Hebrew-English critical edition of the Book of Nativities and the Book of Revolution*. BRILL. Leiden (Holland), Boston (USA).

⁹ Ibid. pp. 31, 33.

mathematician **SAHL IBN BISHR** (c. 786-845), better known as SAHL or AL-TABARI (father of famous physician and scientist ALI IBN SAHL) maintains:

*Know that the distinctions [among] nativities and other things is from the categories of creation, which will not be accurate nor can one do without [them] except after the knowledge of three things of the science of them, from the original roots and preexisting arrangement: and they are the **origins**, the **countries**, and the **food**. [...] as for the food, that is like the Bedouins whose nourishment is dairy products and despised foods, while the rest of people are not like that [i.e. do not eat like that].¹⁰*

Translator BENJAMIN DYKES explains what was meant by SAHL as follows:

So, one should not attribute characteristics to someone living in real-life conditions incompatible with them.¹¹ The same idea is expressed concerning age, sex, and physical health and injury in Chs. 1.2-1.4.¹²

Having cleared the above, we should move to the present time and learn what genetics sustain when speaking of **epigenetics**, from the Greek *epi-*, which means “above” or “beyond” genetics, alluding to “additional” characteristics to the traditional genetic basis of heredity. They explain, closely resembling PTOLEMY, that it is not sufficient to rely solely on the genetic potential of the individual but also to study their environment (climate, diet, upbringing), as this can modify DNA expression without modifying, at the same time, DNA (in which case we would be talking about genetic mutations). That said, effects on phenotypic traits can not only come from external factors but also even lead to illnesses, including mental ones. If we were to apply this principle in astrology, it would be the same as saying that exogenous variables or stimuli can change the way the native’s chart “expresses” in a given environment, country, or culture, that is to say, how he interprets or behaves in relation to his astrology. The National Institute of Health (NIH) tells us:

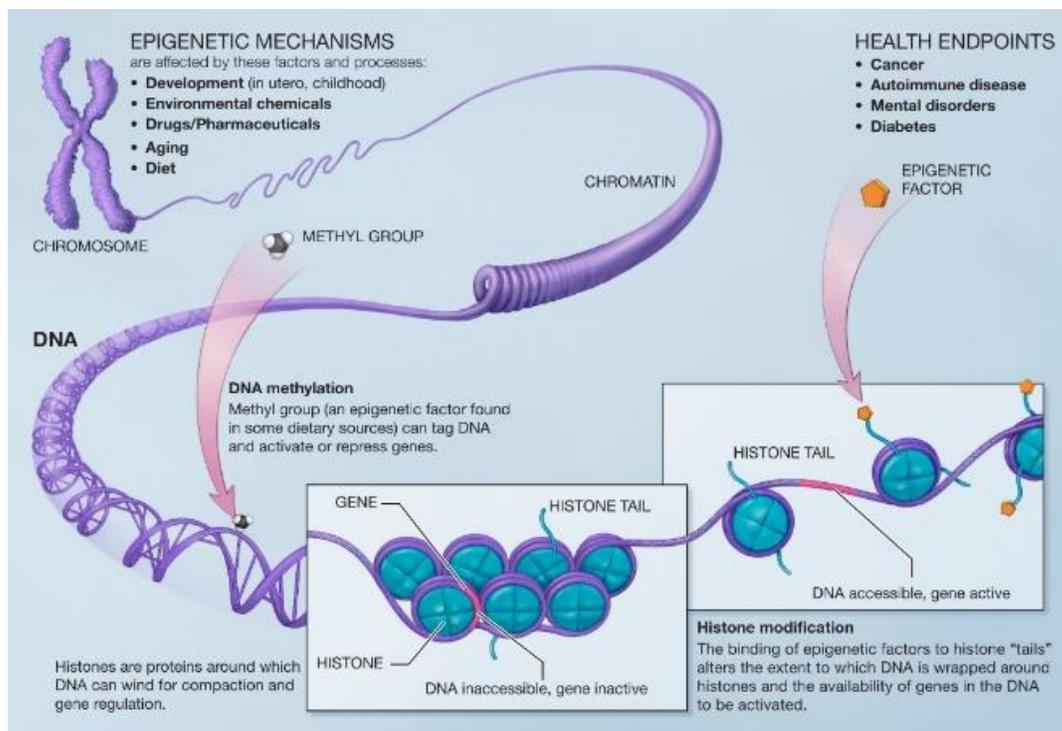
¹⁰ Bishr, S. (2019). *The Astrology of Sahl B. Bishr. Principles, Elections, Questions, Nativities*. Cazimi Press. Minneapolis, Minnesota. Trad. Benjamin Dykes. p. 256

¹¹ Or we would foresee a career in Law even when the astrology in question corresponds to that of an animal. A similar hypothesis is also considered in Sahl (p. 255, sixth point).

¹² Footnote no. 5. in *The Astrology of Sahl*, p. 256.

Epigenetic mechanisms are affected by several factors and processes including development in utero and in childhood, environmental chemicals, drugs, and pharmaceuticals, aging, and diet. DNA methylation is what occurs when methyl groups, an epigenetic factor found in some dietary sources, can tag DNA and activate or repress genes. [...] Histone modification occurs when the binding of epigenetic factors to histone tails; alters the extent to which DNA is wrapped around histones and the availability of genes in the DNA to be activated. All of these factors and processes can have an effect on people's health and influence their health possibly resulting in cancer, autoimmune disease, mental disorders, or diabetes among other illnesses.¹³

Methylation (epigenetic factor) is the mechanism by which gene components or their expression are suppressed, nullified, prohibited, or silenced. This means it can cause alterations in genetic transcription without producing an alteration in DNA sequence. We then speak, too, of **phenotypic plasticity**, that is, any change or modification in an organism's behavior, morphology, and/or physiology because of repeated or otherwise sufficient exposure to specific environmental stimuli. Here's an illustration of said process:



Source: <https://commonfund.nih.gov/epigenomics/figure>.

¹³ National Institute of Health. Recovered from: <https://commonfund.nih.gov/epigenomics/figure>

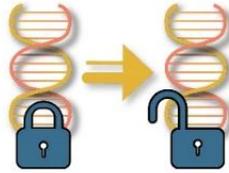
When it is said that the environment can modify the way our organism interprets genetic instructions, or the way our cells reads our DNA sequence, what is meant is the following, whose linguistic explanation should clear any confusion. Although we can find exactly the same letters and even the same synthax (structure) in both “Robert, read” and “Robert reads”, each is read or interpreted differently, as in the first case we give Robert an order, whereas in the second case we only describe what Robert does. The environment in which the individual develops fulfills, in his life, the same function that the simple and apparently insignificant comma (,) fulfills in the sentence. The comma does not change, alter, or modify the letters used or their syntactic structure, nor will the environment change, alter, or modify the native’s DNA sequence (unique astrographical arrangement), but the way or form in which he interprets it. In case this is not clear to the reader still, let us read the following infographic from the Center on the Developing Child (Harvard University)¹⁴:

¹⁴ Recovered from: <https://developingchild.harvard.edu/resources/what-is-epigenetics-and-how-does-it-relate-to-child-development/>

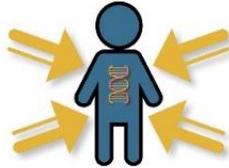
WHAT IS EPIGENETICS?

AND HOW DOES IT RELATE TO CHILD DEVELOPMENT?

"Epigenetics" is an emerging area of scientific research that shows how environmental influences—children's experiences—actually affect the expression of their genes.



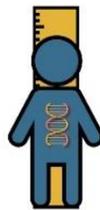
During development, the DNA that makes up our genes accumulates chemical marks that determine how much or little of the genes is expressed. This collection of chemical marks is known as the "epigenome." The different experiences children have rearrange those chemical marks. This explains why genetically identical twins can exhibit different behaviors, skills, health, and achievement.



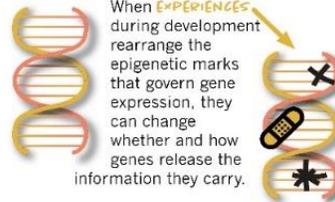
This means the old idea that genes are "set in stone" has been disproven. Nature vs. Nurture is no longer a debate. It's nearly always both!



EPIGENETICS EXPLAINS HOW EARLY EXPERIENCES CAN HAVE LIFELONG IMPACTS.

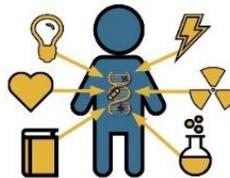


The genes children inherit from their biological parents provide information that guides their development. For example, how tall they could eventually become or the kind of temperament they could have.



When **EXPERIENCES** during development rearrange the epigenetic marks that govern gene expression, they can change whether and how genes release the information they carry.

Thus, the epigenome can be affected by positive experiences, such as supportive relationships and opportunities for learning...

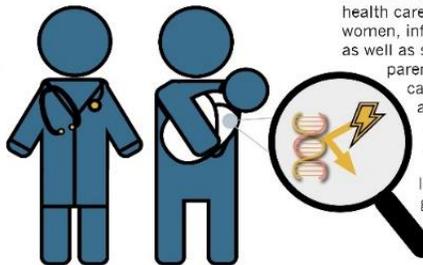


... or negative influences, such as environmental toxins or stressful life circumstances ...

... which leave a unique epigenetic "signature" on the genes. These signatures can be temporary or permanent and both types affect how easily the genes are switched on or off. Recent research demonstrates that there may be ways to reverse certain negative changes and restore healthy functioning. But the very best strategy is to support responsive relationships and reduce stress to build strong brains from the beginning.

YOUNG BRAINS ARE PARTICULARLY SENSITIVE TO EPIGENETIC CHANGES.

Experiences very early in life, when the brain is developing most rapidly, cause epigenetic adaptations that influence whether, when, and how genes release their instructions for building future capacity for health, skills, and resilience. That's why it's crucial to provide supportive and nurturing experiences for young children in the earliest years.



Services such as high-quality health care for all pregnant women, infants, and toddlers, as well as support for new parents and caregivers can—quite literally—affect the chemistry around children's genes. Supportive relationships and rich learning experiences generate positive epigenetic signatures that *activate* genetic potential.

The epigenetic component constitutes a principle applicable not only to genetics but also to astrology and to any judgment intended to be made based on an astrology, so much so that SAHL, previously cited, insists:

*And as for the countries, the knowledge of them should be sought before judging. [...] And as for foods, the knowledge of them should be sought before judging, lest the scholar err. And as for [...]*¹⁵

Because this apparent relativity could overwhelm the astrologer, who must or would have thought it all came down to a person's nativity, we recommend reading this essay in conjunction with the previously published essay (to be broadened), *Quantum Indeterminacy in Morin de Villefranche?* (2023)¹⁶, so that the astrologer or student reading this manuscript would not lose hope or become depressed believing epigenetics disproves astrology entirely. In other words, only then can we understand why we wrote the following in said article:

*[...] the astrologer will only be able to account for the most probable way in which the individual will be, say, do, or act, which is nothing more than to speak of tendencies or probabilities only, never of fate or irrevocable decrees (as the nature of reality, as described by non-classical physics, would not allow for speaking in such terms).*¹⁷

The astrologer can only point out or speak of the natural or astrological potential (genetic potential) available to the individual to be or do one thing or another. Being, for example, a painter, a writer, a scientist, and/or an athlete, or moving to a gastronomy or literature culture-rich country like Spain, like France, or like Italy, etc.

¹⁵ Bishr, S. (2019). *The Astrology of Sahl B. Bishr. Principles, Elections, Questions, Nativities*. Cazimi Press. Minneapolis, Minnesota. Trad. Benjamin Dykes.

¹⁶ Quantum indeterminacy could be explained as someone who has an idea in their head that can be expressed in multiple ways (e.g. A, B, or C) once it is written, that is, put on a sheet of paper, but whose final form or style cannot be predicted or predicated as long as it is not written. We can only calculate the probability that it will be worded in A, B, or C manner.

¹⁷ Bustamante Segovia, D. (2023). Recovered from: <http://www.sagittariusdb.com/reflexion/indeterminacion-cuantica-en-morin-de-villefranche/>



Far from epigenetics disproving astrology, it constitutes one of the two concepts¹⁸ that offers the **necessary potential for experimental evidence** to verify its validity. It would or could explain not only the margin of error of more than one prediction or judgement made by an astrologer of the past or the present, but it would mean—here lies the thought experiment that occurs to us based on the observations of both PTOLEMY, EZRA, and SAHL and EINSTEIN—that one same birth chart (unique) that could be interpreted by the native in two countries simultaneously, will necessarily give rise to variations not only in behavior (psyche) but also in facts (events), as the social organization of the country in question would strengthen or make possible, with a considerably greater margin of probability, the materialization of the effects of some planetary placements more than—or at the expense of—others, while in the other country, vice versa. While the determinists would maintain that there would be no variation because it is the same chart, we do, and the **INDEPENDENT VARIABLE**, in this case, would be the individual or native (organism), while the **DEPENDENT VARIABLE**, the cultural, political, and climatic characteristics (environment or surroundings) of the **CONTROLLED VARIABLE**: country.

Regarding aggression, for example, an aspect of human behavior whose study interested geneticist and neuroscientist ERNESTO BUSTAMANTE ZULETA, he points out (after first having explained the violence karyotype):

*Violence needs, of course, for environmental conditions to facilitate its expression. Most likely, had Nazism not existed in Germany, the murderers from the concentration camps would not have manifested themselves. Also, if Americans had not intervened in Vietnam, those who there committed atrocities would not have had the opportunity to commit them anywhere else.*¹⁹

He also explains:

¹⁸ We can only infer that the other one would not take long to be verified due to increasingly shrewd research by physics. We are referring to the mechanism of action through which astrology operates or through which planets rule or govern life or natural phenomena on Earth and on other planets, as it bears close similarities with Einstein's, Podolsky's, and Rosen's quantum entanglement, not only with electromagnetism (molecular physics). In an unpublished manuscript, *Astrogenesis*, we offer a plausible explanation, in addition to positing our molecular theory of the ecliptic (Zodiac). There are, however, those who have approached this similarly, specially Ptolemy, Selva (France), Weiss (Germany, Argentina), Alpherat (Argentina), and the Arab astrologers (v. gr. al-Kindi, Mashallah).

¹⁹ Bustamante Zuleta, E. (2011). *El hombre y su cerebro. Conocimiento básico*. Bogotá D.C. Colombia. pág. 224.

*In all these cases, the bestial instincts of many subjects are controlled by the laws for fear of punishment (except in extreme cases, bordering on pathology or truly pathological behaviour). So, when such control does not exist, when impunity prevails, and each one not only does not fear the consequences of their actions, but is encouraged and rewarded for committing them, the most primitive tendencies are unleashed and the most brutal instincts manifest.*²⁰

Suppose then, for example, that an individual born with a clear astrological tendency towards crime or delinquency (close squares between *hot* and *dry* planets as signifiers of Houses or relevant regions of the birth chart) could develop in two different places simultaneously, that he or she has a special talent for social or natural sciences, and that these countries are quite different in regard to equality indexes, that is, education and employment opportunities offered to their citizens. Think of Colombia or the United States (although inequalities can regard different issues), and in a country like Portugal, New Zealand, or Slovenia, or in a Nordic or Scandinavian country like Denmark or Iceland, and even in a slightly less utopian country, Australia; one where inequality and crime are either minimal or almost non-existent. Would the native engage in criminal or delinquent behavior regardless of the environment wherein he is, wherein he grew up or developed?

A similar mental experiment appears in the work of the brilliant EZRA, as on page 87 (trad. SELA), where he addresses the **sociopolitical factor** of astrological delineation (after having noted the existence of eight variables that can deny, either totally or partially, natal placements), we seem to find the true source of the allegedly Ptolemaic passage. Although it says nothing of Jupiter, its resemblance is overwhelming:

The fifth way is concerned with the family. If two children are born at the same moment in the same city, one of them the son of a duke and the other the son of a baker's servant, and the nativity of each predicts that they will rise to higher rank and supreme power,

²⁰ Ibidem.

*then the son of the duke will become king and the son of the servant will become a merchant.*²¹

On pages 35 and 36, where the translator of said work explains the sociopolitical aspects taken into consideration by EZRA, SHLOMO SELA tells us:

*The fifth way subordinates the individual fate signified by the natal horoscope to the social rank of the family, a clearly non-astrological factor, thereby explaining away the “twins”²² case, a fundamental weakness of the doctrine of nativities: why two children, born at the same time and place, and therefore having the same natal horoscope, sometimes have a different fate. [...] the role of the “twins” is played by the son of a duke, on the one hand, and the son of a baker’s servant, on the other; [...] taking into account the harsh realities of life, is it realistic to predict that the son of a duke and the son of a baker’s servant (born at the same moment in the same city and consequently having an identical natal horoscope) will attain identical higher rank and supreme power?*²³

Our answer is epigenetic in nature and it is none other than a resounding *no*, as the law of nature (or of God, if you’d like) and the law of man are very different. Whereas the first describes the true potential of the individual, or his natural tendencies, the second describes the obstacles that the individual may experience in order to make them effective or assert them, in short, to exploit them in accordance with their true power (thereby being able to comply with an ecological principle inherent in our species). Only a dogmatic or otherwise biased exercise of astrology would lead an astrologer to discard these and other environmental variables so brilliantly exposed by EZRA. SELA explains:

*To escape this awkward situation, Ibn Ezra applies the principle that the social rank of the family carries more weight than the signification of the natal horoscope; hence the duke’s son will become king, whereas the servant’s son will become a merchant.*²⁴

²¹ ibn Ezra, A. (2014). *Abraham Ibn Ezra on nativities and continuous horoscopy: a parallel Hebrew-English critical edition of the Book of Nativities and the Book of Revolution*. BRILL. Leiden (Holland), Boston (USA). p. 87.

²² Ezra does not use this term, “twins”. The translator, with good reason, refers to them as a possible way of interpreting the description, as Ezra speaks of two natives “born at the same time in the same place”, and Cicero (1st century BC), in his *Divinatione*, criticized astrologers for not taking this circumstance into consideration, among many others, all alluding to environmental or non-astrological variables.

²³ ibn Ezra, A. (2014). p. 36.

²⁴ ibn Ezra, A. (2014). p. 36.

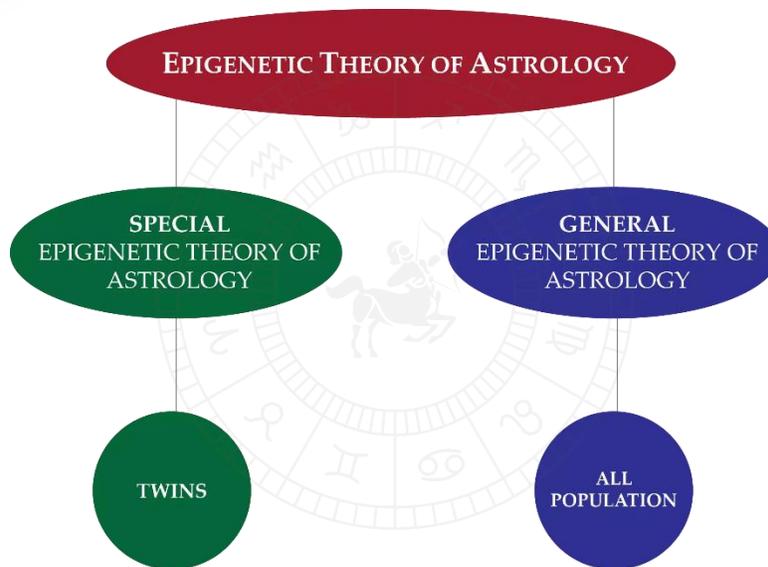
Although the translator points out, drawing on EZRA, that social class prevails over the horoscope, neither he nor EZRA fail to recognize the majoritarian power of the astral influence, as even in the case of the son of a servant, the placement promising success still becomes effective. Although not the son of the duke, he will still ascend or shed social status. That said, in any of the two cases an “elevated Jupiter” will promote success, fortune, or ascension, whatever the case may be. The difference, of course, lies in the particular way of expression of said natural astrological tendency, and this is where the epigenetic factor comes into play, as we have already explained above. SELA concludes:

For Ibn Ezra, evidently, being a merchant is the epitome of a successful career for a prosperous commoner. In this view, as in the case of the Jewish minister, Ibn Ezra is in all likelihood mirroring a picture of fairly extensive social mobility borne out by the historical merchants reflected in various documents of the Cairo Geniza²⁵ [...] ²⁶

Let then the planet Jupiter conjunct the Midheaven (regardless of who has adapted the EZRA passage as originally quoted in this manuscript) serve as an example of an astrological placement subject to expressional verification or approval by the environment in the astrography of two people born at the same time in the same place, but whose circumstances are different. From here can be deduced (following the example of the two Einsteinian theories) the **SPECIAL EPIGENETIC THEORY OF ASTROLOGY** (in relation to twins) and the **GENERAL EPIGENETIC THEORY OF ASTROLOGY** (in relation to all births in general), which we could illustrate or represent as follows:

²⁵ The Cairo Geniza is a repository of two hundred thousand Jewish manuscripts (written in Hebrew and Arabic) on various subjects (commerce, religion, Law, linguistics, etc.) from 870 to 1880. It is a repository of the sacred archives of the Ben Ezra Synagogue in Cairo, Egypt.

²⁶ ibn Ezra, A. (2014). p. 36.



Going back to the example posited by us, the case of a native born with a clear astrological tendency towards crime or delinquency who could grow up in two countries simultaneously, would he engage in such behavior without regard for the environment in which he finds himself, the country in which he is growing up and developing? PLOMIN et al (1980), for their part, in *Behavioral Genetics* (p. 83), maintain:

*[...] Behavioral genetics has developed methods to determine to what extent observed variations in behavior can be ascribed to genetic or environmental influences. It is important to note that most human and non-human behaviors studied by behavioral geneticists are influenced by both heredity and environment.*²⁷

According to specialized geneticists, despite an individual presenting tendencies or genetic predispositions—increased chance or likelihood—to x or y behavior or disease, such tendencies require stimuli regarding their expression, unless said predisposition is so powerful that little or nothing can be done by the environment for the individual, as he/she has been born sick/adolescent already. Hence DR. BUSTAMANTE’s clarification: “[...] except in extreme cases, bordering on pathology or truly pathological behaviour.” This would be the difference between a birth chart wherein placements indicating a particular condition are too strong or

²⁷ Plomin, R. et al (1984). *Genética de la conducta*. Alianza Editorial. Madrid, Spain. Translation into English is ours, for lack of the English original edition.

powerful, as opposed to one where, although clear or strong, can be counteracted or worked on under favorable environmental circumstances. Such circumstances go from upbringing and education to climate and diet, among other DNA expression-modifier environmental variables that can influence the native's behavior with regard to his own astrology or birth chart.

Which, however, holds the more strength? Answering this question is fundamental, as its answer would allow determining the scope of **free will** available to the individual in relation with his astrology or genetic potential. Astrologer and researcher HENRI SELVA (1861-1952) wrote:

*The influences worthy of consideration constitute, in a way, a hierarchy according to which the superiority corresponds to the astral [genetic] factor, in such a way that, usually, astral [genetic] probabilities will prevail.*²⁸

Neither DR. BUSTAMANTE nor SELVA, nor do we or many geneticists, believe epigenetics is much more powerful than genetics, but we do consider, insistently, that its power is not negligible and deserves, therefore, constant consideration and study. Just as a conscious geneticist does not totally shrink the individual to his genome, neither must the astrologer totally shrink him to his birth chart. He is also to distinguish between **independent** and **dependent** genetic or astral **material** (i.e. dependent on the stimuli to which the native is exposed).

The dependent material and the indeterminacy that arises from it with regard to different aspects of the individual's life can be overwhelming, but it is necessary to recognize and accept this aspect of reality. Rigorous *Astrodiens* database (which all professional astrologers use for the purpose of verifying birth information of celebrities and historical persons, among other things) reports, in regard to SELVA's determinism:

Wilhelm Knappich [19th century Austrian astrologer, historian, and librarian] said that Selva's take on determinism was limited, that is, "that events are only potentially

²⁸ Weiss, A. (1993). *Astrología Racional*. KIER. Buenos Aires. p. 240.

preexisting and that everything that is becoming is in a state of partial indeterminism”.
*That said, judgments only have probability values.*²⁹

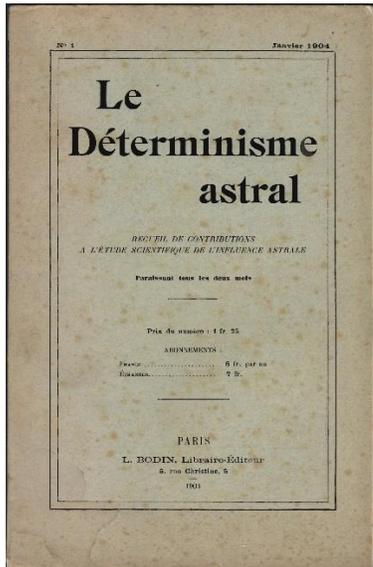
This is congruent with our previous thesis, the quantum indeterminacy of which MORIN DE VILLEFRANCHE seemed to have advise when he explained: “*Une planète ne signifie un chose qu’en tant qu’elle l’effectue*”, as SELVA also seems to advise, and which physics came to develop (or rather demonstrate mathematically) only in the 20th century at the hands of EINSTEIN (1935) and BOHR (1935), of BELL (1964) and CLAUSER (1972), and of ZEILINGER (1999), all recipients, for that reason, of the Nobel Prize in Physics (with BELL’s exception, as the Nobel is awarded to living people only).

The hypothesis described in previous paragraphs (a native who could develop in two profoundly different countries—e.g. Scandinavian country versus a Latin American country—simultaneously in order to determine how much or how little a strong genetic/astral predisposition to violence is expressed while, at the same time, has a special talent or aptitude for social or natural sciences) constitutes a thought experiment in itself. Although it cannot be performed as of yet, if the results were to be those which we have speculated here based on recent genetic research, they would certainly agree, not only with us, but also with, among others, astrologers EZRA and PTOLEMY, SELVA and WEISS, who not little insisted on the need to also take variables from the environment into consideration, not just astrological ones. This, of course, then makes statistical analysis extremely complex, although not impossible. It is necessary to better understand our object of study (i.e. astrology and human being) and adjust the tools accordingly. Consider, for example, the meteorological practice, which has always suffered from relatively large margins of error. It does not mean that meteorology is not useful or that the meteorologist is incompetent (except for large recurring errors, of course), but rather the number of variables at play (from humidity, temperature, precipitation, condensation, and topography to the Earth’s rotation and electromagnetism), which is why the *butterfly effect* was even spoken of. It remains true, however, that the better or more rigorously meteorologists (or astrologers) assess all variables at play, the more precise or exact the weather forecasts (or judgments regarding the native’s life) can be.

²⁹ Astrodienst: https://www.astro.com/astrowiki/de/Henri_Selva#cite_note-4. Astrodienst cites Knappich from his work, *Geschichte der Astrologie* (1998). Klostermann. Frankfurt, Germany.

CHALLENGES THE EPIGENETIC THEORY OF ASTROLOGY FACES

Let us read an observation made by SELVA in his article *Le Déterminisme astral* (1904, pp. 6-7):



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LA DÉMONSTRATION SCIENTIFIQUE DE L'INFLUENCE ASTRALE EST-ELLE POSSIBLE ?

Si aucune tentative n'a été faite, jusqu'en ces temps derniers, pour démontrer scientifiquement la réalité de l'influence astrale, il semble que ce fait puisse être attribué à trois causes principales : l'impossibilité de coordonner et comparer un nombre suffisant d'observations, laquelle découle en première ligne du petit nombre de travaux astrologiques sérieux ; la mentalité particulière qui forme communément l'apanage de ceux qui jusqu'alors se sont adonnés à la pratique de l'astrologie ; et enfin la complexité du problème astrologique.

Les deux premières causes ne contiennent aucune objection de principe excluant la possibilité d'obtenir la démonstration en question ; tout au plus renferment-elles quelque objection de fait, qui, d'ailleurs, tend à disparaître : car les travaux utiles vont croissant en nombre, et, d'autre part, les rêveries mystiques dont on a accoutumé d'entourer l'astrologie, paraissent enfin céder sous la poussée d'un esprit plus positif.

Voyons donc ce que vaut l'objection qu'on a voulu tirer de la complexité du problème à résoudre.

Les phénomènes qui tombent sous l'observation astrologique embrassent à la fois des faits d'organisation vitale, de psychologie et de destinée ; on se trouve donc forcément en présence de facteurs très divers, parmi lesquels il y a lieu de faire un départ fondamental qui range d'un côté les facteurs terrestres, de l'autre les facteurs astraux.

Les premiers peuvent se ramener en définitive à l'hérédité et au milieu, ce dernier considéré sous les aspects multiples sous lesquels on est habituellement conduit à l'envisager lorsqu'on étudie l'être humain.

Mais la présence de ces facteurs n'est pas spéciale au problème astrologique ; au contraire, ils s'imposent à la considération sous quelque aspect qu'on étudie, par ailleurs, les phénomènes qui, dans la sphère humaine, intéressent l'astrologie. Sans doute l'intervention simultanée de facteurs multiples est pour toute recherche une source de complication. Mais l'expérience démontre abondamment

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que si elle retarde parfois les résultats, elle est loin de constituer un obstacle insurmontable.

Au reste, les divers facteurs terrestres dont on serait obligé de tenir compte ici, forment depuis longtemps l'objet d'études spéciales et on commence ainsi à connaître leur rôle et leur portée. En ces matières, l'astrologie trouve donc le terrain déblayé et peut déjà s'appuyer sur des données positives.

Passons aux facteurs astraux. A la vérité, les traditions astrologiques les représentent assez nombreux et font pressentir que le déterminisme astral devra comprendre des conditions multiples. Mais pour le moment nous n'en savons encore rien, du moins de façon certaine. Il n'est donc pas permis d'en tirer argument. Mais supposons même que de ce côté les choses soient fort compliquées ; il reste probable qu'à sérieusement les problèmes et à les attaquer chacun par un côté suffisamment général, on réussisse à trouver une fente où insérer le coin.

En tout état de cause on peut envisager ceci : Si l'influence astrale est une réalité, elle a, comme toute autre force de la nature, ses lois déterminées et invariables ; et ainsi elle ne doit pas plus échapper à la constatation expérimentale que l'influence de la chaleur, de la lumière, de l'électricité, sur l'être vivant. Pour démontrer alors cette existence et dégager ces lois, il suffira vraisemblablement d'instituer des méthodes d'observation appropriées. Mais il ne sera point besoin d'avoir recours à des postulats qui plongent leurs racines dans le mysticisme, ni de faire appel, comme on l'a laissé entendre, à des facultés transcendantes, qui restent douteuses dans notre état de développement actuel.

Peu de recherches ont d'ailleurs le considérable avantage qui distinguera celle-ci : d'avoir un point de départ tel qu'on ne puisse en désirer de plus certain, puisqu'il est fourni par les seules mathématiques.

Si donc les phénomènes qui se passent dans la nature et dans l'homme en particulier, sont soumis à un déterminisme astral, il ne semble y avoir aucune raison de principe qui aille à l'encontre de la possibilité d'en obtenir une démonstration qui satisfasse l'esprit scientifique.

H. S.

The phenomena that fall under astrological observation encompass, at the same time, facts that concern life, psychology, destiny. We find ourselves, then, necessarily, in the presence of very diverse factors, among which it is necessary to make a fundamental distinction that places terrestrial [environmental] and astral factors in separate places. The first can ultimately be reduced to heredity and environment [...] But the presence of these factors is not specific to the astrological problem; on the contrary, its consideration is imposed to any aspect that is studied. [...] Without a doubt, the simultaneous intervention of multiple factors is a source of complication for any research. But experience amply shows that, if it sometimes delays results, it is far from constituting an insurmountable obstacle. Furthermore, the various terrestrial [environmental] factors that we would have to take into account here have long been the subject of special study, so that we are now beginning to understand their role and extent. In these matters, astrology therefore finds the ground clear and can already rely on positive data.³⁰

The author understands that his theory offers little or no potential for experimental tests (currently), as most of his assertions are within the realm of the

³⁰ Astrodienst. Recovered from: <https://www.astrolearn.com/selva-le-determinisme-astral/>

individual's different possible self-realizations, not to mention that the premise it parts from necessarily denies predeterminism and the only two studies that confirm or support this, *epigenetics* and *quantum indeterminacy*, are understood by a very small number of people, at least in its entirety. According to PLOMIN et al (1980, p. 113), the human species is not an ideal population for genetic analysis: experimental crosses cannot be made, environmental control cannot be carried out, the interval between generations is relatively long, and the number of descendants per family is relatively small. These problems, however, are not insurmountable. Because the human population is extremely large, there is a great genetic information reserve. Proof of this is a relatively recent research published in the Proceedings of the National Academy of Sciences (PNAS) of the United States that strongly supports our epigenetic theory (not to mention EZRA's and CICERO's assertions in regard to twins). The abstract alone helps us understand why:

*Monozygous twins share a common genotype. However, most monozygotic twin pairs are not identical; several types of phenotypic discordance may be observed, such as differences in susceptibilities to disease and a wide range of anthropomorphic features. There are several possible explanations for these observations, but one is the existence of epigenetic differences. To address this issue, we examined the global and locus-specific differences in DNA methylation and histone acetylation of a large cohort of monozygotic twins. We found that, although twins are epigenetically indistinguishable during the early years of life, older monozygous twins exhibited remarkable differences in their overall content and genomic distribution of 5-methylcytosine DNA and histone acetylation, affecting their gene-expression portrait. These findings indicate how an appreciation of epigenetics is missing from our understanding of how different phenotypes can be originated from the same genotype.*³¹

Later, the article also points out that the more differently they have lived their lives (by being adopted by different parents, for example), the greater the epigenetic differences between them.

“Finally, we also found that those twin pairs who, according to the questionnaire, had spent less of their lifetime together and/or had a more different natural health–medical

³¹ Fraga, Mario F.; Ballestar, Esteban; Paz, Maria F.; Ropero, Santiago; Setien, Fernando; et al. (July 2005). *Epigenetic differences arise during the lifetime of monozygotic twins*. Proc. Natl. Acad. Sci. U.S.A. 102 (30): 10604–9. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1174919/>

history were those who also showed the greatest differences in levels of 5mC DNA and acetylation of histones H3 and H4 levels (Pearson test, $P < 0.05$).³²

Probably, the best case to test our theory would be that of two people born on the same day in the same place at almost exactly the same time. The case of identical twin sisters LEAH RODGERS and SARAH MARIUZ is worth mentioning, as not only are they identical: these two women gave birth on the same day at exactly the same time; one in Colorado, the other in California. Although it would seem to support predeterminism, we know Colorado and California are still the U.S., that is, both identical twins were exposed to exactly the same culture, political administration, and even the type of food one tends to have access to in said nation, not to mention that the meridian of longitude and the parallel of latitude of these States are not that far apart. Question remains: were they raised under the same roof as well?

A modicum of common sense, perhaps, could suggest that we ought to begin testing with monozygotic twins as not only are they born together but also because they can be artificially created. Furthermore, if we could set their charts in advance, which means setting the date of a cesarean birth so that they present the specific astrological arrangement on which we wish to test (i.e. establish the interesting gene or trait to determine whether the observed expression fits what is expected according to our thesis)³³, we could scientifically confirm or disprove both the **SPECIAL AND GENERAL EPIGENETIC THEORIES OF ASTROLOGY**. Although some would argue that this thesis comes or could come down to a logical problem only, its empirical verification would remove the veil of its genetic nature or component as well. That is to say, once empirically proven, we must begin to verify the validity of astrology from a genetic standpoint in an effort to also verify the **GENETIC THEORY** of the subject (as we have posited in *ASTROGENESIS*, unpublished manuscript). Very soon (speaking in astronomical terms, which means it could take a century or little less than one) we will have the necessary instruments to test it.

³² Ibidem.

³³ Bearing in mind that birth charts are to be assessed based on compound, not fragmental placements, as we have explained (2023) in *The Astrological Delineation Procedure. Can Niels Bohr's principle of complementarity be overcome in astrological delineation?* To be published soon.

THE GENETIC THEORY OF ASTROLOGY

In *Astrogenesis*, prefaced by renowned Spanish astrologer JUAN ESTADELLA, we posit both our epigenetic theory of astrology and the genetic theory, due to close similarities between both disciplines. Anticipating, perhaps, objections from those who might consider this far-fetched, we not only recommend reading the first pages of said work and the research conducted by the most important scientific astrologer of the 20th century, DEMETRIO SANTOS; we also quote the author of said preface:

[...] *Furthermore, as evidenced in this essay, the degree of interrelation between both fields is not only interesting, but also amazing. This connection, if not from a physical or biological point of view, may well occur on a metaphysical level, on a level that we are only now beginning to notice.*³⁴

In said work we establish around ten close similarities between both subjects without even bringing up, yet, the similarities between astrology and epigenetics addressed herein. We also postulate our Molecular Theory of the Zodiac (ecliptic) and present a fragment of the Astrological Theorem from *Discourse of the Astrological Method* (currently under development) in order to offer a plausible explanation of the mechanism of action through which astrology operates. We believe it is due to our scientism and theoretical rigor that we were able to interest a geneticist from a prestigious university, who was forced to abandon the project after having shared it with a higher-ranking colleague at the institution, who criticized her for “associating yourself with astrologers”. It is only unfortunate the crapulous ignorance with regard to astrology in contemporary Western society, especially in Latin America, and, for the same reason, that it continues to be believed that the infamous newspaper horoscope has to do with it, as it is nothing more than a consumer good for the superstitious³⁵, not to mention the Catholic Church condemnation of astrology—as of everything that can or would offer an alternative explanation of reality and the universe—in past centuries (e.g. First Council of Braga) under programmed

³⁴ Preface by Juan Estadella in Bustamante, D. (2023). *Astrogénesis. Ensayo científico sobre la astrología desde el punto de vista genético, y viceversa*. Unpublished manuscript.

³⁵ Probably originating from Chapter III of Alan Leo's *Astrology for all* (1899). Despite having professed a deep respect for the discipline, Alan contributed to its popularization by offering the man of contemporary Western society, amidst the Second Industrial Revolution, a particularly biased, fragmented method of reading.

prejudices, even going so far as to incinerate intellectuals (e.g. GIORDANO BRUNO) for fear that their theories, now confirmed by modern science, would spread. In the 21st century, the right we have to ignorance or prejudice is very little or none whatsoever, as the digital age has provided us with access to absolutely every type of information in a matter of seconds. It is time for the well-intentioned of the world, academics and scientists whose hearts are electrified by the seek for truth, to take interest. If they did, not only would the spirit of astrology be vindicated, but we would also put an end to more than one debate, utmost naive debates that only allow for the big picture or whole of astrology to be noticed and whose practitioners would seem to ignore. “For the good of astrology itself”, as recommended by ESTADELLA in said preface, it is necessary for astrologers to become involved in scientific studies, as for scientists to become involved in astrological research. Contributions that would begin to arise or sprout from modern science and astrology—in a joint work—would not be ‘only a few’ in a relatively short period of time.

POST SCRIPTUM

Just as the seek for detailed understanding on the transmission of hereditary factors and their mechanisms of action has led judicious investigators to study cytology, embryology, physiology, biochemistry, biophysics, and mathematics—as foundations of Mendelian genetics (GREGOR MENDEL) were laid without knowledge of the physical or chemical nature of the hereditary material—responsible and conscientious astrologers have an ethical obligation to study genetics, not just astronomy (in the case of the most judicious, also chemistry and physics), at least if they desire to broaden their understanding of astrological effects on humans, reason being the same as in the previous example: the foundations of astrology were established without explaining its profound physical and genetic nature. Let us hope that this manuscript does not become betrayed by the pride of those who find it difficult to undertake such studies, even on their own, nor by dogma or fanaticism on behalf of some of the traditionalists, as, by understanding its thesis, we can all come on board in its study and eventual empirical validation. Although it has been validated biologically, not yet in the astrological field, even when one could argue that its genetic validation necessarily implies or would imply its astrological validation. As EINSTEIN was not completely satisfied with the work conducted by the genius the came before

him, NEWTON, neither was MENDEL satisfied with DARWIN's *pangensis*. Nor did the geneticists who followed MENDEL settle for the basic principles he described, thereby developing what we now regard as epigenetics. Neither are we astrological researchers in the obligation to settle with the determinism apparently defended by the ancients or with the sole or purely symbolic, artistic, and/or intuitive explanation of astrology, because it is first and foremost, clearly and insistently, a science.

Cicero's questions when he dispatched against astrologers in his *Divinatione* (44 B.C.) CANNOT, MUST NOT go unanswered. It is our obligation, now having most of the tools available, to give—or begin to—answer the questions that any sensible man, that is to say, rational, should ask himself if he or she looks to become an astrologer: (i) *Why do two natives born at the same time and in the same place and therefore sharing the same natal chart, have a different fate?*³⁶; (ii) *Why do many natives, born at different times and in different places, and therefore having different natal charts, share sometimes the same fate?*³⁷; (iii) *Why do astrologers disregard the beneficial effect of Nature, surgery, or medicine?*³⁸; (iv) *Why do astrologers pay exclusive attention to the significations of the natal horoscope and ignore other factors such as wind, rain, and weather, which have also an effect on birth, or the parental seed, which is an essential element of the process of generation?*³⁹ After all, «a discreet man neither allows himself to be directed nor tries to govern others; he only wants reason to prevail exclusively and always»⁴⁰.

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³⁶ Cicero (1923). *De Divinatione*. Loeb Classical Library. London. pp. 472–473. Translation by William Armistead Falconer.

³⁷ *Ibid.* pp. 480-481.

³⁸ *Ibid.* pp. 478-479. Hence the fatalistic aphorisms of the ancients and even of Morin de Villefranche, when they point out that the ruler of the first house stayed in the eighth house and afflicted, among other indicators of premature death, are rarely given today, since modern medicine not only keeps people alive in a vegetative state: it also saves those who, according to the will of nature, would have died.

³⁹ *Ibid.* pp. 476-477.

⁴⁰ Jean de La Bruyère (1645-1696).

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