

46. Considerare and desiderare: An astronomic etymology**Ruggero D'ANGERIO¹****APA:** d'Angerio, R. (2022). Considerare and desiderare: an astronomic etymology. *RumeliDE Dil ve Edebiyat Arařtırmaları Dergisi*, (27), 745-756. DOI: 10.29000/rumelide.1105602.**Abstract**

The etymology *desiderāre* and *considerāre* has been a controversial subject. The presence of the word *sīdus* (star/constellation) and the roman rituals related to the observation of the stars have influenced numerous dictionary compilers who propend for an explanation tackling stars observation and magic. Researchers have focused on the examination of the word *sīdus* and have found conflictive results, linking the meaning and etymology of these words to the sectorial languages of astrology, hunting, or fishing. Considering that this etymology supposedly incorporates astronomy, intended as science or practical knowledge, this article aims to offer a different explanation for *desiderāre* and *considerāre*. In ancient times the observation of the sky was pivotal for various activities because the stars were providing humans with accurate indications of time. These indicators were composed of different constellations. While *sīdus* refers to a constellation or group of stars, a single star is named *stella* in Latin. Besides, agriculture was an indispensable and time-based activity, which was impossible to do without the help of the sky although it was fundamental for the survival of communities. This interdependence was present in both Greek and Latin literature, as the star-based calendars are a common trait found in many ancient civilizations. Against this background, this article argues that *desiderāre* and *considerāre* pertain to the agricultural language and it incorporates both values of expectation and pondering that are related to the anxiety for the new vital cycles and the planning of agricultural works.

Keywords: Desiderāre, considerāre, Latin etymology, archo-astronomy, ancient agriculture**Considerare ve desiderare: Astronomik bir etimoloji****Öz**

Desiderāre ve *coniderāre* sözcüklerinin etimolojisi tartışmalı bir konu olarak günümüze ulaşmıştır. *Sīdus* (yıldız/takımyıldız) kelimesinin varlığı ve yıldızların gözlemlenmesiyle ilgili Roma ritüelleri, her çağda yıldız gözlemi ve sihirle ilgili bir açıklama arayan sözlük derleyicilerini etkilemiştir. Arařtırmacılar son zamanlarda *sīdus* kelimesinin incelenmesine odaklanmışlar ve bu iki kelimenin anlamını ve etimolojisini avcılık, bahkçılık veya astroloji gibi sektörlerin dilleriyle ilişkilendirerek çelişkili sonuçlar bulmuşlardır. Bu etimolojinin bilim ya da pratik bilgi amaçlı olduđu varsayılan astronomiyi içerdiğini göz önünde bulundurarak, bu makale *desiderāre* ve *considerāre* fiilleri için farklı bir açıklama sunmayı amaçlamaktadır. Eski zamanlarda gökyüzünün gözlemlenmesi çeşitli etkinlikler için çok önemliydi çünkü yıldızlar insanlara doğru zaman göstergeleri sağlıyordu. Bu göstergeler farklı takımyıldızlardan oluşuyordu. *Sīdus* bir takımyıldız veya yıldız grubunu ifade ederken, tek bir yıldızda Latince *stella* adı verilir. Ayrıca tarım, toplumların hayatta kalması için temel olmasına rağmen, gökyüzünün yardımı olmadan yapılması imkansız olan, vazgeçilmez ve

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zamana dayalı bir faaliyetti. Bu karşılıklı bağımlılık hem Yunan hem de Latin edebiyatında mevcut çünkü yıldız tabanlı takvimler birçok eski uygarlıkta bulunan ortak bir özelliktir. Bu arka plana karşı, bu makale, *desiderare* ve *considerare* fiillerinin tarım diline ait olduğunu ve yeni yaşam döngüsü kaygısı ve tarımsal işlerin planlanması ile ilgili hem beklenti hem de düşünme değerlerini içerdiğini savunmaktadır.

Anahtar kelimeler: *Desiderare*, *considerare*, Latince etimolojisi, arkeo-astronomi, antik tarım

Introduction

A great number of dictionaries assume the existence of an etymological link between the word *sīdus* which means 'stars', and the words *considerare* (to consider) and *desiderare* (to desiderate). This link does not pose any difficulty with regards to the form, and it is presumably affected by the misperceptions about the word *sīdus* itself. The meanings of these two verbs are respectively displayed in most dictionaries as 'looking at the stars' and 'to be deprived of/ wait for the starlight', which can be found in the following examples: *Diccionario General Etimológico de la Lengua Española* (1887, vol. 2, p. 392), *de Roquefort* (1829, vol.1, p.231), and the *Dictionnaire Étymologique Latin* (1918, p. 346).² The suffix *con-* for the former may have played a role in this rather incorrect etymological explanation. That is, the activity of 'looking at the stars together' allowed several dictionary compilers to relate this verb to certain religious-magical activities, which certainly were in vogue during the Roman period, or the meaning was attributed to other anthropological aspects such as 'consider' in the *Online Etymology Dictionary*. For the latter verb, *desiderare*, the suffix *de-* has given the wrong idea of 'lacking something' as if there was a wish that was not accomplished by the magic power of the stars or lacking the star lights themselves. The entries 'sidereal' in *Cledat* (1914, p.534), and 'desire' in *Online Etymology Dictionary* support this etymology but both explanations are rather unconvincing in terms of semantics.³ *The Chamber Etymological Dictionary* explains the verb 'desiderate' as "to look eagerly towards a thing" (1867, p.121), and the verb 'consider' is probably derived "from augury meaning to mark out the boundaries of a temple" (p.89). *The Dictionary of English Etymology* defines the verb 'consider' in a similar way, that is, "a figure according to Festus, from the observation of the stars" (1872, p. 168). This is indeed the exact

² *Diccionario General Etimológico de la Lengua Española* (1887, vol. 2, p. 392) "**Considerar:** Del Latin *considerare*, mirar con atención (to look with attention); de *cum*, con, y *siderens*, lo perteneciente á los astros; derivado de *sīdus*, *sīderis*, constelación, signo celeste, sol, luna, estrella, cielo: catalán, *considerar*; provenzal, *considerar*, *cosirar*; francés, *considérer*; italiano, *considerare*." The same dictionary interprets *de* as an intensive in the entry **Desear:** "Activo. Apetecer alguna cosa, aspirar á ella. Etimología. Del Latín *desiderare*, compuesto del prefijo intensivo *de* y *siderare*, forma verbal de *sīdus*, *sīderis*, constelación, signo celeste". In these two entries is evident the oscillation of the meaning of *sīdus*, *sīderis* from a single star to a constellation.

de Roquefort (1829, vol.1, p.231) "**Desiderare.**[...] souhaiter le retour d'un astre favorable" This entry links the meaning to the expectation of a favourable star, as we suppose favourable for essential human activities. While the meaning of *considerare* is derived from the observation of the stars for magic purposes. This is evidently in contrast with what we know about the Roman practices to predict the future and generally the literature about magical rituals, "**Considérer** regarder, examiner avec attention; avoir égard estimer faire cas. *considerare* observer les astres pour en tirer quelque augure". (looking at the stars to derive some predictions).

The *Dictionnaire Étymologique Latin*: relates the meaning of *desiderare*, to the absence of something, *desiderare*: 'constater l'absence,' and rightly interprets the difference between *sīdus* and *stella* but then lacks in linking the meaning to practical activities proposing only a magical use of this observation of the stars: "*Sīdus* diffère de *Stella* ou *astrum* en ce qu'il marque une réunion de plusieurs étoiles. — *Considero* et *desidero* sont empruntés à la langue de l'astrologie". Conformed to the language of astrology, but in reality, it was more probably astronomy, useful as a time indicator, for several activities.

³ **Sidéral:** "se rattache au latin *sīdus*, *sīderis*, astre sur lequel se sont formés aussi *considerare*, proprt regarder comme on observe les astres, et *desiderare*, réclamer (en vain) quelque chose aux astres, aux dieux, d'où regretter l'absence et souhaiter la présence de." To claim something from the stars, the gods, or to regret the absence of something and to wish the presence of something" Le premier de ces verbes nous a fourni le mot savant *considérer*, d'où *considération*, *considérable*, *déconsidérer*, *inconsidéré*, et le second le mot populaire *désirer*, d'où *désir*, *désirable*, *désireux*". This entry is not considering the fact that *sīdus* does not mean star but constellation and *desiderare*, is explained as having a suffix *de-* of privation.

translation of “*considerare a contemplatione siderum videtur appellari*” (Paul. Fest. Verb. Signif. 33 Müller). Skeat (1911) agrees upon this definition of ‘*considerāre*’ (p. 107-108) while providing a more romantic definition for the word ‘desire’ which is “allied to *sīdus*, a star, as if to turn the eyes from the stars...” (p. 138).

The most prestigious etymological dictionaries of the Latin language appear to have been captivated by the magnetism of the stars and have thus given certain clarifications, which presumably paved the way for the latest dictionaries. For instance, Ernout and Meillet (2001, p.319) have given a rather exhaustive clarification of the meaning of the word *sīdus* in their reputable dictionary marking a difference in meaning that underlines the main point of view of this article upon this controversial etymological issue. However, they still reinforce its aforementioned link to certain religious aspects. They, nevertheless, clarify that the meaning is not the star tout-court but the constellation, namely a group of stars⁴. The Latin language obtains the word *stella* standing for ‘star’. They considered these words to be stemmed from a language of rituals and applied then to normal usage. In the meantime, they have lost all their rapport with religious *sīdus*. Besides, the notable *Vocabolario Etimologico della Lingua Italiana* poses a further explanation, pointing to a relationship between the verb *considerāre* and the customs of ancient people who watched the stars to comprehend their destiny (Pianigiani, 1907).⁵ This is an anachronistic explanation of this etymology, because the Romans showed interest in the horoscopes only at the end of the republican period, with a fierce opposition of the conservative strata of the society.

A literary review of the etymology: a suggestion from Terentius Varro

In *De Lingua Latina* (7.14.2), Marcus Terentius Varro writes “*sidera, quae quasi insidunt*”, meaning that the stars are sitting together, and thus relates its meaning to the verb *sīdeo-ere*. This given etymological definition is in contrast with *Indogermanisches Etymologisches Wörterbuch* by Julius Pokorny, (1959, p. 1042) which relates its meaning to ‘shining’. Pokorny’s dictionary has been widely respected and still enjoys a notable reputation among researchers since its first publication in 1887. In line with this, the etymology proposed by Varro should be defended and proved. Accordingly, the word *sīdus* should be considered to have a rapport with *sīdeo* as an old neutral theme in *-es*, referring to what is ‘sitting’, the thing that is not moving and with an astronomical meaning, namely a ‘fixed star’. Other neutral themes in *-es* provide certain proof of this explanation. For example, **geno-ere*, which means to engender, has its roots in *genus-eris*, the gender. An identical relationship can be found between *pendo-ere* (to weigh) and *pondus-eris*, similarly *fido-ere* (to have faith) and *fedus -eris* (the thing that has faith, a pact, or a contract).

Dwelling upon these considerations, Pârdulescu (1980) explains the verb *considerāre* as to look in a fixed way (English: to stare, German: *stiren*) and adds other examples that stem from Indo-European

⁴ Ernout and Meillet (2001, p.319). “*étoiles formant une figure, constellation (par opposition à Stella)*”. It is worth to point out that *sīdus* is used only in the plural form. The singular, for the first time, appears in Virgil and Horace

⁵ “*fissare una stella per leggervi i decreti del fato, essendo opinione degli antichi che i destini degli uomini dipendessero dalle stelle*”. This explanation is common in almost all dictionaries. In fact, even though divination was very common in the roman society from its beginnings, it is also true that was not focused on the observation of the stars. The Romans had several methods to predict the futures, dating back to the beginning of their history like, Capnomancy a method of divination using smoke; Catoptromancy by looking to a magic mirror; Palmistry or hands reading; Crystallomancy is a method for seeing visions achieved through trance induction by means of gazing at a crystal; Hydromancy a divination done by means of water, including the colour, ebb and flow, or ripples produced by pebbles dropped in a pool; Lecanomancy done by mixing different liquids; Pyromancy by looking into the shapes of the flames produced by a sacred fire.

languages with the same root (p. 162). Concordantly the prefix *con-* should not have a definite role. He also refers to a Latin semiology of looking: 'looking down on' (lat. *de-spicere*) means to disregard to despise; 'to look up to' (lat. *sub-spicere*) means to contemplate and 'to look in details' (lat. *per-spicere*). The general meaning of looking with attention is *ad-spicere*, *in-spicere*. In this semantic system, *con-spicere* only means 'to look at something at the same level', and to 'look at it attentively'. Hence, *considerare* means to 'look firmly at something'.

Varro's suggestion (*sīdus* from *sīdeo*) paved the way for Pârvulescu to also explain the verb *desiderāre* (p. 164). This verb should be regarded as 'losing the immobility, the fixity', meaning that something is attracting an intellectual tension, as in Virgil "*si mihi non animo fixum immotumque sederet*" (*Aen* 4.15). In other words, when we desire, we lose our stability in front of something. By the same use of the prefix *de-* Latin has *dē-līrāre*, *dē-rīvāre*, *dē-mens*, meaning respectively 'to go far from the furrow or from the right line, or to go mad', 'to depart from a river' and 'to be far from reasoning'. Therefore, *sīdere* means to sit, but also to stand, to be resolute, and *dē-sīdero* means the degradation of this state of stability, just as *sisto* means to be strong and stable and *dē-sisto* means to surrender.

Nyman interprets this etymology in a different way (1990, pp. 51-68). He agrees with Pârvulescu in that the previous explanations lack certain semantic aspects, and he relates the verbs *considerāre* and *desiderāre* to the *sermo venatorius*. His research points out that the two words, *considerāre* and *desiderāre*, cannot be analyzed separately, and only after having discovered the obscure meaning of *sīdus*, it could be possible to locate them in a semantic system. Nyman (1990) considers the semantic and etymological explanations of Pârvulescu to be poorly grounded, namely *sīdus* as firm/stable and *considerāre* as to look fixedly. He is not convinced by the similarities offered by Pârvulescu, such as 'star and to stare' (Eng.), 'fixe and fixer' (Fr.), ἀτενής 'fixed' and ἀτενίζω 'to look firmly' (Gr.). In other words, Nyman does not find the etymology of *desiderāre* persuasive enough as previously suggested by Pârvulescu.

Choosing the previous research of Wood (1912) as his starting point, Nyman (1990) offers a different etymology and he compares **siderare* to the Greek word ἰθύς, which means 'straight', and to other words in different languages, including the old Indo-Aryan '*sīdhyati*' that holds a similar meaning. The field of semantics is introduced to Nyman by Homer (*Il*, 21, 169). The following epithet, 'ἰθυπτιῶνα' is presented as 'flying to the right point', and the word 'ἰθύς' means in this epithet 'the mark, the right point'. This is to say that Nyman explores a new interpretation of *sīdus*, comparing it with the Greek word ἰθύνω, which means 'directing the trajectory of a flying object towards the right place', and brings all of us to the prehistoric era to establish the following proto-stim: *kom+sīdhes* (p. 64). However, the only language that is useful for his interpretation is Proto-Finnish, and it is not possible to discern evident rapports with other languages. In his analysis, Nyman (1990) assumes a frozen participle as well, namely *consideratus*.

After certain transformational adaptations, such as *gestus consideratus* turning into *considerate gerere*; *susceptio considerate* into *considerate suscipere* and *navigationem considerate* into *considerate navigare*, Nyman (1990) also proposes a few proto phrases: *gestum considerare* (to direct the gestures) and *considerare navigationem* (to direct a ship). In Nyman's (1990) conclusion, the verb *con-sīderāre* means "to direct one's missile, one's mind or eyes to a specific target" (p. 64). Thus, *de-sīderāre* would evidently mean "not being capable of hitting the target" in a system that contemplates such verbs as *de-generāre* and *de-spērāre*. Nyman's (1990) research offers certain valuable suggestions. These words are related to each other, and their history can be traced back to the times prior to classical

Latin. To locate them into a credible semantic schema, it is a priority to understand the meanings of those verbs thoroughly. The lack of cogent etymological and semantic parallels in Nyman's article endeavours to relate those verbs to the *sermo venatorius*, thus providing room for different considerations.

Definition of the etymology through astronomy

This paper argues that the etymology of the verbs *considerāre* and *desiderāre* should be reviewed by taking Varro's explanation on them into account. Varro asserts that the stars mean something as books of equinoxes. It is therefore clear that *sīdus* is related to *sīdere*, however, the astronomical aspect of the meaning of a 'fixed star' is crucial and it entails a more comprehensive explanation. The relationship between humans and the sky in ancient times was vital. It was highly necessary to interpret the laws of the ether and its transformations. The survival of ancient societies depended on the magical cycle of the sky, which urged people to understand such concepts as hours, days, and seasons. This was a fundamental need for people when they planned their activities such as hunting, fishing, or farming. The ancient folks believed that the purpose of the stars was to influence the rhythms of nature, and understanding the cosmic order was the way to analyse the present and predict the future. Besides, most of the ancient calendars were created through the observation of the stars, and agricultural fests and other activities depended on those observations. In line with this, Hesiod (VIII-VII BCE) writes: "When the Pleiades, daughters of Atlas, are rising, begin your harvest, and your ploughing when they are going to set" (ll. 383-404, trans. 1914). What does Hesiod mean by 'rising' and 'set'? He indeed refers to the heliacal rising and setting. The heliacal rising happens when a star is visible just before dawn, and the heliacal setting happens, in a specular way, when a star is visible just after dusk. On those special days, when the heliacal rising begins, the star blinks for a moment, and it is, then, overshadowed by the sun. In the following days, the stars would progressively be visible for a longer period, however, they would not blink.

Nevertheless, certain stars cannot experience this rising process since they are always above the horizon. Those phenomena are extremely specific and happen just once a year, which thus caused them to be taken into account as the basis of calendars and agricultural activities. In other words, it is evident that most ancient folks based their calendars on those highly peculiar phenomena. For instance, the Maya based their ritual calendar on the heliacal rising of Venus. The heliacal rising of Hamal (Alfa Arietis) was also registered in the cuneiform tablets of Babylonia. A similar kind of astronomical observation took place in India and China (Gaspani, 2010). Varro provides another precious information. He explicates that the stars are the books of equinoxes, meaning we understand the equinoxes through the stars. This appears as an astronomical *contradictio in terminis*. If the length of a year is based on the observation of the stars, the year is sidereal. On contrary, the tropical year is calculated on the premises of vernal equinoxes. However, this calculation is far more difficult and, according to Kepler's second law, partially inexact. Due to the undoubted difficulty of calculating the equinoxes, most ancient societies used 'sidereal observation' as the starting and ending point of their calendars. This observation was easier than calculating the sun's shifting from north to south on the horizon. Varro patently highlights that in Rome, there was a discrepancy between the official calendar that was based on the weather and the actual agricultural calendar that indicates the time based on the stars.

Furthermore, *The Enciclopedia Italiana Treccani* confirms that the story of the Roman calendar is highly complex. The first calendar of Romulus merely had ten months, which starts from May and lasts until December for a total of 304 days. The successor of Romulus, Numa reformed the calendar and

made it reach up to a length of 366 days. This calendar was in use until Julius Caesar's reforms, and it had created a lot of confusion. The same Romans had perceived the length of the civil year to be longer than that of the sidereal year, and at times the Collegium Pontificum (College of Pontiffs) had corrected the date by removing some days from the civil year. Caesar, eventually, reformed the calendar by defining its length as 365 days, compensating the loss of almost six hours by adding every four years a day, specifically the sixth day of March was doubled, becoming *bisextus*.

Discussion

In his research, Nyman (1990) declares that to understand this etymology, one must cross the limits of classical Latin and go back to prehistory. Then, following Nyman's suggestion, we shall give some evidence that the relationship between the words, object of this paper and the stars or constellations, dates to the prehistoric era, and that the observations of stars during those times have presumably given birth to the proto-stim *kom+sīdhes*. It is worth here to remind that settlements in the neolithic era were at mid-latitude, with the ideal solstice and equinox variations, marked by ancient civilizations. We report some of the archaeological findings to enlighten the link between humans and the sky, which since earliest times was twofold: religious and practical. Hughes (2005) investigated how Early Bronze Age sky-watchers were able to understand the procession of equinoxes, and focusing on the well-known Stonehenge site, he states that "many Neolithic and Bronze Age structures were aligned towards specific Sun and/or Moon rising and setting points on the horizon", and these observations were on purpose for "social/religious/ agriculture/ fertility cult calendars" (p.29). The sky was showing to the earlier sky-watchers an unchanging stellar sphere and a celestial pathway, a zodiacal band around which seven non-fixed Bodies were moving. The movement of the celestial Bodies is predictable and commensurable with the human lifespan, giving ready-to-use time indicators of the seasons, while the migration of these bodies throughout the Zodiac i.e., the calculation of the procession of the equinox, is a movement that kept the attention of astronomers till Kepler⁶. Hughes underlines the prominent role of a specific star group, the Pleiades, a clear signal for the sky's observer that the solstice of summer was about to come. Other traces of observations of the Pleiades during pre-historical times are visible in Lascau's Cave in France (ca.21,000 -22,000 BCE), showing an impressive astronomic competence. This constellation is represented by a bull, denoting that the identification of this constellation with the Taurus is almost 20,000 years old. Another intriguing palaeolithic painting is in Cueva di El Castillo in Spain, which represents the Northern Crown. Other archaeological findings that represent the Pleiades, such as carved stones, dating back to 2,500 BCE. are visible in Val d'Aosta and Sardinia in Italy. Hence, it appears as well that the constellation of the Taurus, the Pleiades, Aldebaran, and Hyades had fundamental importance in prehistoric times. Other findings of the prehistoric era confirm the observation of this constellation and we are sure of its importance, as for the mentioned literature, when farmers were called to take important decisions on agriculture works.

So, the observation of the stars was already in use in palaeolithic hunter-gatherer societies, and subsequently, to the development of agriculture, this knowledge increased and diversified. Babylonians had a great knowledge of astronomy, and their sky-maps were eventually inherited by the western world. We said before that the interpretation of the stars served different scopes, and Babylonian sky-maps confirm this assertion (Rogers, 1998). In fact, a group of constellations was representative of Gods, and

⁶ The heliac constellation is the one in the West, containing the Sun, (called Carrier of the Sun). The Zero point of the stellar Zodiac is the constellation that housed the Sun in the vernal Equinox. The procession of the Equinox shifts this Zero point every 25,784 years. Throughout the Great Year it spends 2148 years in each constellation. Now it is in Pisces, but in 5000 BC, the zero point was in Gemini and then in Taurus and Aries. The discovery of the Processional Year is usually attributed in the West to the 2nd-century-BC astronomer Hipparchus.

another was used as a farming calendar. It is important to notice that many constellations were common in the two groups sharing similar sky-maps. These representations developed stage by stage, from 3500 BCE to the Sixth Century BCE. The last constellations to be identified were the Divine figures, before 475 BCE, i.e., the zodiacal signs that eventually passed to the Greek tradition. The Babylonians noticed the progression of equinoxes, (a shift from 15° to 8° of the spring Equinox is accounted) even though it is not clear if they tributed it to the increasing accuracy of their instruments rather than to the steady motion. They maintained the equinox at 8° till the Second Century BC, while it should have been at 4°. Therefore, Greek and Roman astronomers had it in the same position, until Hipparchus settled it at 0° in the sign of Aries, correct for that time.

But what Hipparchus settled and corrected, is not only the erroneous collocation of the equinox derived from the Babylonian tradition, it is known from the studies of Crommelin (1923) and Maunder (1909) that the collocation of the constellations in the Greek tradition is older than classical Greece. They argue that the collocation refers to 2500 BCE approximately, far before a possible influence of Babylonians. Therefore, the classical sky-map cannot be a sole derivation from Babylonian culture, and it has been not created in a moment in time, because some of the constellations that appear there were unknown to the Babylonians. We must, therefore, imagine that there were constellations known to all cultures, the most visible ones: the Bear, Arcturus, Sirius, the Pleiades, the Hyades, Orion. The last two are cited by Hesiod, as we reported in the previous section, and by Omer, as agriculture signallers. There are then some other constellations that marked the celestial coordinates around 2800 BCE and are the Enormous Serpent, the Bears, and the Giants, possibly identified by Mediterranean populations because they are not present in Babylonian maps. Possibly they were used by Minoan navigators, and were not related to the Zodiac, but were only describing some sort of serpentines useful to point out cardinal points.

It is worth here to remind that the 12 signs of the Zodiac, which were developed in Mesopotamia from 3200 BCE, reached their canonical display just around 500 BCE and astrology was based on these signs of Gods. This possibly confused the etymology we are explaining in our research. In fact, we can assume that the act of *considerāre*, as Newman says, belongs to the prehistorical age, and indicates the observation of these groups of stars known at that point in time. Therefore all the explanations of *considerāre* and *considerāre*, involving astrology, are anachronistic.

Eudoxus, (408-355 BCE) created the first know globe describing the sky, where the constellations had both equatorial and ecliptic coordinates. His poem *Phaenomena* was rewritten by Aratus of Soli and then translated into Latin, becoming the most widly known scientific text in the classical world. It illustrates the structures of the constellations and positioning of the stars, providing the relative times of their rising and setting. There is no reference to zodiacal astrology, which originated around the Fifth Century BCE in Babylonia.

The observation of the sky was practised by the Romans but with a very different spirit. While in the rest of the Mediterranean astrology, based on the Zodiac, was spreading its false predictions, as Cicero⁷ reminds us, Romans were more interested in the practical use of it. This is a well-known trait of the roman spirit, privileging practical knowledge useful for a good engineer, a jurist, a farmer, or a sailor. They were not interested in creating a system of the universe, and their interest in astronomy was related to practical benefits. In the previous sections, we cited some poets' quotes regarding agriculture and sky phenomena, and one of Varro, pointing out that the referment to the constellations was a common way

⁷ Cic. *De Div*, II, 87 "No reliance whatever is to be placed in Chaldean astrologers when they profess to forecast a man's future from the position of the stars on the day of his birth"

to indicate seasons or specific days. Similarly, the *Corpus Agrimensorum*, a collection of guidelines for the measurement of the private properties, at the beginning of roman civilization, then of entire portions of the roman empire, relied on several instruments and astronomical knowledge. The *agrimensores* were also in charge of the orientation of the new cities. They were signing the *Cardo* and a *Decuman* respecting cardinal points. Frontinus (40-103 BCE) describes the adaptation of this art from the Etruscan sphere of divination to the practical roman use (*De Fin.* 10.20-11.8).

The first origin of the art of tracing limits, as stated by Varro, comes from the Etruscan *Disciplina*, where the *aruspexes* divide the earth into two parts...and [in two other parts] with another line from the north along the meridian. From these foundations, our predecessors took the art of measuring the lands. First, two streets will be traced: one from the east, which will be called *decumanus*, the other on the meridian from the north, which will be called *cardus*. For *limites* are established on a principle not non associated with cosmology.

Vitruvius (80/70-23 BCE) in his *De Architectura*, recommended (*De Arch.* I.I.3) that an architect had a good knowledge of astronomy, “*astrologiam caelique rationes cognitatas habeat*” and all the IX book of *De Aarchitectura*, is devoted to the relations between astronomy and architecture. In this context, Vitruvius deals with various issues strictly related to astronomy: the universe and the planets, the phases of the moon, equinoxes and solstices, the constellations of the north and south, and the different types of clocks: solar and water ones. In this book, Vitruvius also exposes the method of the *analemma*, a system that was used to draw on the sundial the points on which the shadow of the tip of the gnomon passes during the most salient periods of the year: solstices, equinoxes and on the days when the Sun entered the various zodiac signs.⁸ Eventually, stars have simply become a commonly used means to indicate, among other things, the date. In this respect, Quintilian informs us that in a child’s education, astronomy played an important role not only as general knowledge but also as a practical one (*I.O.* 1,4,4). He writes a rather interesting statement: “nor again if he is ignorant of astronomy, can he understand the poets; for they, to mention no further points, frequently give their indications of time by reference to the rising and setting of the stars” (trans. 1920). A few quotes confirm the didactical usefulness of astronomical knowledge.

“... First let the Pleiades, Atlas’s daughters, set for you in the dawn, and let the Cretan stars of the burning Crown, Corona Borealis, vanish, before you commit the seeds required to the furrows, or rush to entrust a year’s hopes to the unwilling soil” (Verg. *Georg.*I, 220-225 trans. 2001).

This is a significant example not only of good poetry but also of some practical recommendations to farmers⁹. A friend of Virgil, Horace was pervaded by a bucolical spirit. Le Boeuffle notes that in all his works, he indicates the days by not only sidereal observations and astronomical indications but also by atmospheric events (1994, pp.37-44). He did not enjoy the hot weather and posed “*Caniculae aestus*”, the hottest days of summer, after the 18th of July, under the constellation of Canis Major (*Carm.*, 1,17,17). Its rising preceded the 15th of July under the constellation of Procyon, “*Iam Procyon fruit et stella vesani Leonis*” (*Carm.*, 3, 29, 18-20). The rainy days were associated with the Hyades Star Cluster, “*tristis Hyadas*” (*Carm.*, 1, 3, 14), and Orion’s morning setting was used four times to indicate the storms e.g., “*Sed vides quanto trepidet tumulto Pronus Orion*” (*Carm.*, 3, 27,17). We need here to underline

⁸ The indications of Vitruvius lasted until the Middle Ages and after, in fact his method is of essential importance in the calculations that medieval builders used in the construction of churches or castles, to determine certain orientations or to realize particular illuminations of niches, tombs or religious images.

⁹ These verses contain a reference to the constellation of the Pleiades, which is highly related to agriculture. Its rising is coincidental with the harvesting, and it is sitting with the ploughing. Thus, it is widely celebrated in ancient and modern literature. In Roman culture, there were several agriculture-related feasts during this period of the year. Similar expressions to indicate periods of the agricultural cycle can be found in Varro, Columella, and Cicero.

that Horace's poems were not addressed to a niche audience; the understanding of his astronomical references was rather reposed on common knowledge¹⁰.

The list of the Latin authors that discussed astronomy, just for practical uses, could be very long and trespasses the boundaries of this article. So far, we aimed to give ground to our interpretation of the etymology of *considerāre* and *desiderāre*, supporting it in two ways. Firstly, the astronomical knowledge of some important and visible constellations was a common trait both of prehistorical and historical societies, in the same area where Indo-European migrations took place. This means that a proto-stim, created during these times to indicate the observation of the sky, is possible. Then, we related this observation to practical uses, especially agricultural uses. The link with agriculture is deep and extremely old, as confirmed by the observation of the Pleiades and other major constellations since the neolithic Era.

Finally, we need to prove our etymology throughout the rules of linguistics. The *Indogermanisches Etymologisches Wörterbuch* of Julius Pokorny, (1959, p. 1042), links the meaning of *sidus* to shining, moving from an Indo-European stim *sueid-*: Av. *x̣āēna-* 'burning,' (**x̣āēdna-*); lat. *sīdus, -eris* 'star', *considerāre* 'betrachten', *dēsiderāre* 'long want'; lit. *svīdūs* 'blank, gleaming', *svýsti* 'to gleam begin', *svīdū, -ē 'ti* 'gleam', lett. *svī st* 'Dawn of days', *svāidīt* 'anoint' (actually 'gleam make'). In this respect the verb *considerāre* should mean "to look at something bright" (Wharton, 1890.p.22).¹¹ This supposed etymology by Wharton, interprets *considerāre* as a frequentative verb, underlining the effort of this scrutiny of the sky, without any referment to any magical practice. Wharton gives us also an interesting meaning of *dēsiderāre* (p.28) "*desidero* long for: hardly (1) 'miss from the session,' fr. *sīdus*: (2) 'fail to see'". This etymology confirms an act of observation of the sky, with the expectation of the right signs to appear, as we suppose, to decipher the vital cycle of agriculture. Our etymology is based on the meaning of *sīdus* as a group of stars, a constellation. We already recalled the visions of Pârvulescu and Nyman, the first interpreting *dēsiderāre* as 'lose our stability in front of something' and *considerāre* as 'to look fixedly', the latter recalling the *sermo venatorius* in which *considerāre* should mean 'directing the trajectory of a flying object towards the right place' and *dēsiderāre* 'to come off a goal'. We concord with Lindsay (1894, p. 485) assuming that *considerāre* is a denominative verb.¹² The absence of the supposed **sīderare*, is not at all uncommon in the Latin language. In fact, considering it an extension of the verb-stim-*sīd-* it has a similar formation like: *macero, recupero, tolero*. Indeed, the same absence of a direct denominal verb is supposed for **templāre* near *con-templāre* or *miniscor* near *com-miniscor* and *re-minisco*.

Concordantly, grounding this etymology on *sīdus* derived from a proto-stim - *sīd* – (meaning to sit), we can support it with the other Latin verbs sharing the same sense as *sīdere* 'to sit down', *considere* to 'settle down to settle', *desidere* 'to sink to settle down', *insidere* 'to sit or to settle upon', *obsidere* 'to besiege', *persidere* 'to sink right in', *possidere* 'to take hold of', *residere* 'to take one's seat', *subsidere* 'to squat'. We think that the supposed link with *sueid-* 'shining' is not satisfactory, even though it is easy to imagine a shining star. Indeed, a proto-Indo-European stim from *sīd* i.e., **si-sd-e/o*, cognates cogently with Skr. *sidati* and Av. *hiḍa*, 'to sit down'; Gr. ἴζω 'to sit down'; Arm. *Nsti-* 'to sit'; OPr. *Sindants*, and

¹⁰ The tradition had its peculiar way to indicate days and months, and the pragmatic reform of the calendar, which led to the synchronization of tropical and sidereal years at the end of the Republican period, did not permeate the poets and the large strata of society.

¹¹ Wharton, (1890, p.22) *considero* inspect hardly (1) fr. *consido* 'am in session', from *sido*, as 'look at/seems the orig. meaning: (2) 'look at something bright,' *svīd-* cf. *svīd-* Lit. *svīdus* shining.

¹² Examples of these endings are: -o, -are: *nomino-are* from *nomen*; *coloro-are* from *color*; *onero-are* from *onus*; *scelero-are* from *scelus*; *examinare-are* from *examen*; *privo-are* from *privus*; *ignoro-are* to make unrecognizable; *pio-are* from *pius*; *probo-are* from *probus*; *sacro-are* from *sacer*; *gravo-are*, to make heavy, from *gravis*.

OCS. *sěsti* with the same meaning. We agree with Pârvulescu, when he states that *consīderāre* means 'to look fixedly and with attention to something', while, in our view, *dēsīderāre* is composed with *de-* meaning deprivation. It means, therefore, 'lacking something or missing to see something, or missing the constellation', in opposition with the etymology proposed by the same Pârvulescu, 'losing the fixity/ to be unstable', composed by *de-* plus a stative verb.

Conclusion

Following the arguments presented in the above sections, it is possible to claim that the real meanings of *consīderāre* and *dēsīderāre* are inextricably related to the stars in two ways. The etymology of *sīdus* has been clarified by Ernout and Meillet, and, according to them, it referred to a group of stars fixed to each other, namely a constellation. In contrast, however, we believe firstly that the prefix *con-* maintains its clear meaning of 'together' as in the given example of Virgil who indicates another constellation, the Corona Borealis. Therefore, by considering several constellations, the farmers could have been able to take their decisions on what to do next. These 'considerations' had a lot of consequences and they required both attention and ponderation. Mistakes or shallow analyses of the signals of the stars would have paved the way to food scarcity. Moreover, it can also be inferred that it was an act not committed by a single person, but agreed together with other farmers and star interpreters, as a recurrent ritual, thus explaining the suffix *con-*. For the latter verb, '*de-sīderāre*', there is an evident state of anxiety regarding the expectations for the right stars to arrive. The ancient farmers scrutinized the sky, waiting for those special signals, which indicated that the cycle of nature was about to begin once again. It was an essential desire, which can also be seen as the desire to produce the commodities for living or finding the best time for hunting. In this sense, the prefix *de-* means privation or expectation for something. Finally, we have been able to explain the etymology of those two words, basing it on linguistics, archaeology, and astronomy. This explanation takes us back in time, when the stars, the only firm and clear time markers, were regulating the rhythms of humanity. This different interpretation of this enchanting etymology can refer the words *consīderāre* and *dēsīderāre*, to the agricultural language of the neolithic era. It is an era of revolution and scientific development, especially in botany and animal biology, bits of knowledge that paved the way to the domestication of plants and animals. Humans, during the Neolithic, began to wonder about the origins of the perplexing changes they observed around them.

Why sow in one season rather than in another? Why does seed germinate? Why does clay harden in contact with fire? Why do the moon and stars change position in the sky? What is the relationship between the position of the stars and the propitious moment for any particular agricultural activity? If the position of the stars in the sky has an influence on the lives of plants, does it also have an influence on the lives of human beings? (de Laet, 1994, p. 895)

In the observations of our ancestors and in the answers they were able to give, are to be found the first germs of the scientific mind. The examination of the sky, and the subsequent discoveries of its eternal rules, are a milestone in the advancement of human development.

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