I. When the year is drawing to a close, it is an almost worldwide habit of Astrologists to pronounce the horoscope of the coming year according to the position of the stars, announcing its nature, spirit, and habits, and whether it is to bring good or poor health, whether it will be fertile or fruitless. This is then made known in their Ephemeredes. For my part, however, I deemed it more opportune to adopt the opposite, but sounder method, and summarize the nature and climate of the past year, which diseases raged, which remedies were found effective and which harmful. I intend to do this year after year, until my work is interrupted by “death, the final finishing-line of all things”.

I believed this would both please the noble professors and be of use for the future, as the art of medicine owes its origins and progress to nothing other than simple observation; and this progress would be even greater if more attention were paid to novel, uncommon events that are a daily occurrence in the treatment of diseases. Nevertheless, as in the Astrologers’ Ephemeredes, there will also be room for prophecy. I believed it did not suffice to describe what happened to our landsmen this year, but that it was also my duty to discover why such an abundance of diseases afflicted our fields and, while not exactly philosophizing, at least try and predict what the impact of this epidemic disease might be. Furthermore, human weakness should not be ashamed of making prophecies of things that are obscure and enveloped in darkness, the art of medicine especially, as Hippocrates himself wrote that, “Medicine and prophecy are closely related since the progenitor of arts is just one, Apollo”.

II. “Now, he should know the constitution of the different sea-
sons of the year and of diseases accurately; and of diseases individually – the good or bad of each”. These are Hippocrates’ very words in the *Book of Critical Days*. Indeed, he also writes that “the nature of man is not superior to the power of the universe”. By using the word “universe”, there is no doubt Hippocrates wanted to point out the power of the seasons, since this is the origin of nearly all epidemic diseases. Paying close attention not only to the present constitution of the seasons but also to those of the past is of the utmost, I repeat, utmost importance for foreseeing future disasters, both in order to wipe them out and to establish an appropriate diet, which is said to be the best prevention of common diseases. This should be clear to everyone since various, uncommon changes in the air are the result of this, just like a root, and sooner or later they bring with them different kinds of epidemic disease. Thus, before starting on a description of the epidemic diseases that afflicted our farmers and the southern part of the Cispadane region, I thought it worthwhile to study the previous constitutions.

III. It is well-known that throughout almost all of Italy the past four or five years have been unusually dry with abundant crops, and that general good health has been enjoyed by the people. It would therefore seem that the saying “everything is much healthier when the weather is dry” is true. However, last year around the equinox there was a considerable amount of rainfall that continued throughout spring, making it icy and indolent. There was a great deal of rain during the summer that followed as well. Around the summer solstice, one could see the signs of blight on the crops and this then spread, afflicting the wheat crops the most, covering the wheat in blood-like blotches from stalk to ear. Beans and other legumes suffered the same scourge so that within just a few days, any hopes of a good crop in such a fertile year were dashed. However, the abundant harvests of the previous years were a consolation as enough food had been stored for the future. At the beginning of September, and even more so around the equinox, there were heavy rainfalls that lasted throughout October, making it very difficult to stop the raging waters bursting the riverbanks. There was hardly any rain in the last two months of the year and 1689 ended quietly. Only sporadic diseases were observed in the above-mentioned seasons and the number of deaths was very low.

IV. At the beginning of 1690 (which was afflicted by the plague
of blight that ruined crops and all kinds of harvests, and by a long series of terrible fevers that afflicted first those in the country and then those in the city), the first season was rainy but gradually became worse and was so oppressive that it dulled everyone's spirits. The winter that followed was therefore damp and cloudy and so mild that snow would melt immediately. The month of March passed with the usual rainfall and remained nice until the equinox, thus reviving everyone's spirits, but then the heavens opened once again and it seemed they were pouring down all the water they held. During just 24 hours everything was covered with water, making the city look like an island. The farmers shiver when they describe the calamity of this great flood which “took the oars where they had just been ploughing”.

This was to be observed not only around Modena, but also around Finale, Mirandola and Ferrara, that once used to be part of the ancient Padua valley, where all the rivers coming down from the Apennines from the city of Piacenza would meet and then continue down to the Adriatic Sea (Strabo has proven this), before they were forced to flow into the River Po once the riverbanks had been constructed. The waters therefore stagnated for a considerable time in these areas because the Po was not only unable to take any more water since it was already overflowing, but also because its own water had actually burst the banks and was flowing through our land along the Scultenna and Gabello. The rainfalls then persisted throughout the whole of spring and nearly all the summer so that not one day went by without a drop of rain. As the Boreas was also frequently blowing together with the rain, this was one of the coolest summers in the area in history, as could be seen from the thermometers, so the crops ripened extremely late, so much so that crops were harvested in the month of July. The barometers also showed that the mercury was higher than usual and the air was thick and foggy. The cicadas could hardly be heard and were replaced by the croaking of frogs throughout nearly the whole of summer. Thus, instead of spring we had a kind of winter, and instead of summer a kind of spring.

V. Never before had fish been so abundant in these areas as this year, so it was to be bought all over the place very cheaply, and both the townsfolk and country people ate it daily, the latter even more so since they could go fishing in their own fields and even in their homes, “while Neptune supplied the food instead of
Ceres”, as Diodorus Siculus once wrote about the Ichthyophagi. I was told by a trustworthy friend of mine, a merchant who was passing through Modena during that period to buy silk, that the country-folk would give the sick febrifuges and since this was successful in most cases, this kind of remedy proved of great use in many places, like an elixir with special properties that was able to restore them to good health.

VI. Once again, at the beginning of June, just like the previous year, the first signs of blight appeared. The violence of this disease was first to be seen on the mulberry and its wisdom (for which it stands in the plant kingdom) was of no use. The blight, the worst disease for all crops, then gradually became worse, afflicting all cereals, legumes but beans in particular, and not only in the lower lying areas where the waters were stagnant, but also in higher areas such as above the Via Emilia and its very hills. A sad, deplorable sight lay before everyone’s eyes – all the fields around them were no longer green but black and sooty-coloured. Just like the year before when this epidemic made the crops red, this year they became a black mass, “branding them with coal, not with clay”. All the supplies were therefore destroyed, both because of the blight and the flow of putrid waters, while the farmers looked on in amazement because instead of the wheat they had sowed, all that remained was a crop of darnel. Not even the fruit of plants that matured at the beginning or end of summer was spared from this plague. Never before had the grape harvest in the lands of the Este family, which were so rich in grapes, been so scarce, as even the bunches of grapes had been afflicted by the blight. The only things not to be harmed by this blight epidemic were the walnut trees, which had been so unusually scarce in the previous years. Not even the vegetable kingdom was spared the fury of this disease – nearly all vegetables were burnt as if they had been attacked by a hot burst of the sun. And there was further devastation – caterpillars and grasshoppers devastated all the vegetable gardens, leaving behind them naked offshoots. Melons and all other kinds of fruit were so tasteless that even animals would spit them out if they ate them.

VII. Some people might try not to laugh at my describing the events in such detail. Well, they should remember that very often these are the signs of great catastrophes and that “very often a mouse can be the bearer of bad news”, as Fracastoro once said.
Just as a light cloud is the sign of a great storm in the art of navigation, very often subtle signs can also be a warning of serious diseases in the art of medicine. Hence, Hippocrates said, "Do not neglect anything". In Plutarch, Cleombroto therefore rightly criticized Demetrius, who said it was ridiculous that such tiny things affected bigger ones. To use his very words: "The art of medicine foresees a pestilent summer because of the abundance of frogs and fig leaves, when they are like raven claws in spring: of those who claim that tiny things do not bear the mark of something greater, who will admit it?"

VIII. Almost two months without a drop of rain followed the rainy season that had started at the beginning of the year and continued tenaciously until July. However, it was not particularly hot, which would have been usual for us especially when "the Dog Star minor rages (Procyon)". However, after the equinox the rain returned and at first everybody was frightened. In actual fact, the amount that fell was modest and it was barely enough to soften the dry earth, which was almost stony as a result of the previous drought; thus the farmers' prayers to be able to sow their wheat were answered. As in the last year, the last two months of the year were nearly always fine and not particularly cold, with temperatures that would have been more appropriate at the beginning of winter.

IX. This was therefore the weather this year - as we shall see, extremely hostile to both the plant and animal kingdom. Although the winter was so unseasonable, no particular effects were apparent in the medical field. This was not at all surprising since at that time each illness was lying latent, ready to appear at the right time and place. The two brilliant luminaries in the field of medicine, Da Monte and Vallès, as well as Hippocrates himself, knew all too well that epidemic diseases were the offspring of the previous and not present seasons. As Hippocrates says: "About the rising of Arcturus much rain fell again, with the wind northerly. The year being thus southerly, damp, and mild, the winter proved healthy to all but consumptive people". Thus, as spring was approaching, around mid April in the region around Modena on this side of the Via Emilia and other nearby places where the water had stagnated for a long time, there was a sudden outbreak of fever. At first it was intermittent tertian fever and I know of nobody who was afflicted by a different kind of fever once this epidemic broke out. With no dis-
crimination of sex, age, temperament or life style, all country-folk were afflicted by intense shivering, cold, tremors and even vomiting. This kind of fever was accompanied by profuse sweating that gradually decreased during the illness. Very few were no longer feverish but nearly all of those who had seemed to have recovered later suffered from a relapse. However, although this kind of fever raged for a long time, as far as I know nobody died. It was often the case that if venesection was carried out on alternate days, the patient would be seized with a fever that very day and it would go from a simple to a double tertian fever. This was observed not only in the countryside but also in villages and in this city. In fact, during the same period the towns-folk were also afflicted by the same intermittent tertian fevers, but in greatly reduced numbers compared to those in the country.

X. Fevers continued in this manner throughout the whole of spring. However, as summer was approaching, all the tertian fevers became double fevers and any new outbreaks were the same. Nearly all farmers therefore suffered from a double tertian fever that was intermittent but lasted so long that they were fever-free for just a few hours. In the evenings their condition would be aggravated by a vast range of other symptoms such as vomiting, agitation, headaches, vertigo, in some cases torpor and in others deliria, as I frequently had occasion to witness. Their strength was greatly reduced at night, at times there were even cases of asphyxia and the patient appeared to be at death's door. In the morning with the rising of the sun these symptoms receded, and once they had got up and gone out into the sunshine, it seemed as if the sunrays, that endless source of warmth and light, would regenerate their vital spirits. Since I paid such close attention to life in the country this year, more than once I had occasion to admire the sick who had fought with death throughout the night, but were then able to stand upright the following morning, just like snakes who had shed their skins, and still had enough strength to wander through the fields. However, they all showed considerable appetite, and would often complain about their frugal meals. In fact, as far as I could see, this fever caused more hunger than thirst.

XI. Never were there so many cases of verminosis and not only in children but also in older men. I remember having seen a farmer who was around forty years old under a portico in the sun.
fever had made him rigid and he also had terrible hiccups. When I asked him if he had vomited worms, he replied he had, both by vomiting and evacuating his bowels. I told him that the hiccupping, which bothered him most, was caused by the worms in his stomach. Since he had cinchona powder as it had been prescribed by a public doctor, I allowed him to take it. This persistent hiccupping disappeared together with the fever, which returned several days later, albeit without the hiccupping. I later used this remedy to kill worms in children and had great success.

XII. Blood that had been taken in this season via blood-letting was thicker and lighter in colour. In some cases it was also yellowish, though this was not visible on the body. The excrements of nearly all those who had a fever were dense and solid. Anything that was vomited was more acidic than bitter. Urine was mostly thick and cloudy, with a lot of earth-like sediment. Very often in those cases of fever where no malignancy was suspected, the hypochondria were hard and taut.

XIII. After being tormented by tertian fevers for so long, some patients also suffered from parotitis, which could generally be suppurated, but not even then would the tenacious fevers disappear. I treated a pregnant woman who had had a fever throughout September and then got parotitis, which was suppurated with success and purged for a long time. However, by the end of the year she had still not got rid of the fever – this shows just how tenacious and almost overpowering the cause of this fever was. Such tenacious fevers that were prone to reappear had never been seen before and eluded all medical skill. Repeated blood-letting, purgatives, or any other kind of antidote that pharmacists were announcing at the top of the voices as if they were sent from heaven all proved useless. What is more, those who recovered more rapidly were those whose blood had not been let, those who had not been administered purgatives or any other kind of remedy. Their good health was restored only thanks to nature, the curer of all ills. Furthermore, purgatives and vomiting proved more effective than repeated blood-letting, and these patients always took a turn for the worse. I once saw a poor farmer who had been suffering for ages from a double tertian fever, and whose condition became critical. He did not undergo blood-letting and without taking any other kind of remedy, his good health was restored by drinking abundant wine, which I myself had
suggested. I know of others who recovered by drinking just wine, without any water or resorting to other kinds of remedies.

XIV. Since not only the country-folk but also those living in larger towns and cities were exhausted by these tertian fevers, although they were not quite epidemics but tenacious nevertheless, and the attempt at any remedies appeared to make them worse rather than better, I believe that this year we are experiencing what Plutarch describes in the book *The Eclipse of the oracles*; in other words, in this season certain oracles of the art of medicine remained silent because they were ignoring the reason why intermittent tertian fevers, most of which were not believed to be malignant, did not comply with the preconceived opinion of the great power medicine has over any disease.

XV. As a result, to save themselves from accusations from the people and the continuous complaints of their patients, most of the doctors in this country resorted to the sacred anchor of cinchona bark, but with little success. In fact, they aggravated the condition of their patients even more. By using an antipyretic for several days the fire would hide beneath the deceptive ashes but would then return blazing to the surface even more violently than before. Nevertheless, the more experienced doctors who placed more importance on the patient's well-being than on their own ambition, would resort to other means.

XVI. In this manner the array of those with fever advanced throughout the whole summer and autumn, infesting both the countryside and cities, while the sick would "hope for the quartan fever" in vain, hoping for a pause between the daily paroxysms. In actual fact, this year very few people have been afflicted by quartan fever or by any other continuous or burning fever; the only cases have been tertian and these became less frequent towards the end of autumn and the beginning of winter, although they were more serious, being intermittent at the beginning and then gradually becoming slower and more continuous while the patients were mostly afflicted by shivering towards the evening, following the usual pattern.

XVII. In addition to this array of fevers that set up camp between the River Po and Via Emilia (a street I do not dare cross since the whole stretch, between the hills and this street, enjoys the best of health and sound country life), there were many other ailments such as diarrhoea, jaundice, apoplexy, dropsy, heavy catarrh, and
other illnesses and they joined together as one, going here and there in search of prey. Those who were afflicted by dysentery in this year recovered more rapidly and enjoyed better health than those who had diarrhoea.

XVIII. Robust men found it easier to bear the force of this season than women and young children – nearly all of those under the age of three died. In the town of Finale alone, it is estimated that over three hundred children died, as can be seen from the obituaries there. A great number of children also died in the area around Mirandola and Novellara. They survived the paroxysms of fever for a couple of days, but then became jaundiced and died of epileptic spasms. All in all, in view of the great number of sick, very few died and those who did died more as a result of such lengthy illnesses and frequent relapses than because of the violence of the fever. However, the majority of those who survived suffered from jaundice and cachexia.

XIX. The wrath of this evil season was also felt by animals of all kinds and they died in huge numbers. Thus, as in the season described by Silio Italico, which was dry and extremely hot, “dogs were the first to feel its fury”; in this season, which was so cold and wet, the first to succumb were the sheep. Once they had been ill for several days, they suddenly broke out in pustules on their heads and neck and were sometimes even blinded, so that those that did not die of the disease starved to death. Pigs suffocated to death en masse as well.

Never before did bees produce so little honey, either because they died in their hives or because they migrated elsewhere. At first silkworms also died like flies and those that barely managed to survive in the mills then died of inertia. I would have exaggerated, if I had tried to describe each and every detail. Nevertheless, if time had permitted, it would have been useful to study the intestines to have been able to identify the cause of these illnesses, of sheep in particular as they suffered most.

XX. I am sure some readers will accuse me of having veered towards Veterinary science; let them grumble as much as they want because I believe the observation of such things is also useful for those in the field of medicine. The greatest doctor ever did the very same and was not at all ashamed to study why oxen dislocate their femurs more easily than other animals. His very words, taken into
consideration by nobody as far as I know, are as follows: “Oxen dislocate their femurs more often when they are skinny; they become skinny at the end of the winter and that is when they dislocate them in particular, as long as it is befitting for medicine to write of such things. Well, yes, it is”. And since the most renowned anatomists carry out so many experiments and dissect the corpses of these beasts, which made it possible for the erudite Bacon to give us the comparative anatomy that was so much sought after in the field of medicine, why should it not be admissible to study their diseases as well? On the contrary, that a surgeon is allowed to treat animals without dishonouring his art can be seen by the learned Charles Patin in the well-written address he gave at the University of Padua in 1682.

XXI. These are the things either I myself observed in this year's seasonal diseases or of which noble professors and trusted friends informed me; if the truth be told, it is not the manner in which they occurred that should be described but the causes that should be studied, and the results should be made available to entice the interests of masters of medicine and scholars. One needs courage to carry out this kind of task according to one's strength, and "I must try and follow a path that will also take me to greater heights".

XXII. There is absolutely no doubt that common diseases, also known as widespread or epidemic, arise from common causes. These are mainly the air around us (contaminated by something else, either by the skies or the earth), common food with noxious juices, and infected waters. Everybody is in complete agreement that all of these, but the air in particular as it is like a common fountain we are all forced to drink from, cause certain diseases that then afflict a great number of people at the same time. In actual fact, it is legitimate to believe that it is the combination of both infected air and the intake of inferior food that causes our rural epidemics. I believe that the primary cause lies in the air, since it not only deviated from its normal seasonal patterns, but was also full of particles that are incompatible with human nature, while poor food and polluted water are secondary causes. Although a contagious miasma might be suspected, for example when one family member is afflicted by fever the other members gradually fall ill as well, I still believe this is caused by a common disposition, which matures at the same time, in the same manner that fruit matures in autumn
at the same time, rather than a kind of contagious emanation that then infects all the others.

XXIII. Everyone knows just how important being in the fresh air is for good health, as far away as possible from unhealthy emanations. For example, just as fish thrive better and are healthier to eat if they live in clean, clear water rather than in dirty, polluted water, the same applies to men, who live a happier, longer life if the air is pure than if the air is thick and foggy. The famous saying that the humours of our body and our breath are just like the air is appropriate here. As a result, in places where the air is lighter and purer, men of a livelier and more discerning nature usually thrive; whereas if the air is thicker, men of a duller, more foolish nature thrive. This is why in ancient times the Boetians and Batavians did not enjoy a good reputation, hence the quotation by Horace: “You would swear he had been born in the gross air of the Boeotians”.

XXIV. It is worthwhile examining exactly why air is so necessary in life, how it enters the tiny cavities of the lungs, and what it does to the blood mass when it mixes with it. Many learned men have wracked their brains over these questions, one of the more recent being Ettmüller, who wrote an extremely elegant dissertation on the abstruse mechanism of respiration. Here I shall limit myself to looking at only those things that might bring about a significant change in air, upsetting its natural balance. There is certainly no doubt that if the air is to be suitable for respiration and therefore also for the vital functions, it has to maintain a certain balance and be neither excessively thick nor light. If it is too light and rare it is unsuitable for respiration, as the Machina boyleiana has shown so clearly; similarly, there are those who have experienced more difficulty in breathing at greater heights than those in lower-lying valleys (as observed by Tommaso Cornelio). On the other hand, if it is thicker and more saturated with vapours and exhalations, it is not at all suitable for respiration and can even lead to suffocation, as can be seen in the Machina pneumatica. Miners in quarries frequently experience the same thing, which is why Hippocrates recommended “sleeping in the cold but dressed warmly”. It is also not surprising that both Vallés and Baillou say one should sleep well-covered in a spacious room, so that one breathes better and one’s sleep is not disturbed by the cold air that makes the exposed body parts smart.
XXV. Considerable changes in the air (and I do not mean those that are a course of nature and the changing of the seasons, but those that take place at the wrong time) are mainly caused by strong winds and heavy rainfalls. This is because the closer the sunrays come to the earth, the more they heat the air, unless the earth is affected by other changes. The same applies to the exhalations from the earth in swamps and ponds, or those from excessively damp earth, and they frequently contaminate the air as well. In our case, however, I believe the air was contaminated by abundant rainfalls and mud this year, and that its sudden return was contaminated by the northerly winds. As these never ceased in spring and throughout nearly the whole summer, they weakened the strength of the sunrays and therefore obstructed the dispersal of the vapours resulting from that mild warmth. The volatile spirits were thus repelled towards the southerly winds that the sun usually sends in all directions as it approaches the earth. As a result, in many places with stagnant waters, the air that had been warmed at the beginning of spring was filled with countless vapours and nauseous fumes. This polluted air was then weakened even more by the volatile particles that come from the sun and when it was inhaled by those living in these places, it disturbed the entire blood mass and natural consistency of the other fluids.

XXVI. I therefore believe that the natural sweetness and fluidity of the blood mass was affected, making it thicker than it should have been. I also believe that the natural balance between the bile and the pancreatic juice was upset, making one stronger than the other. De la Boe's renowned proposal was ingenious — that mainly volatile spirits descend on the earth from the heavens in particular, whereas the earth, which is so rich in mineral juices, is a constant source of acid particles that fly upwards. This was then confirmed by logic and experiments. Thus, since the weather was so wet and cold this year, there was a considerable lack of volatile particles and particles rich in spirits, and instead it abounded in acid particles in particular that came from the muddy earth. It is therefore not at all surprising that once it penetrated the homes, it caused such a vast proliferation of fevers. Acidic rather than bilious and alkaline dyscrasia prevailed for two reasons in particular. The first was that this year, although there was such a widespread outbreak of fevers, there were no cases of continuous, burning fevers. The
second was that, as mentioned earlier, fevers of this kind make the patients hungry rather than thirsty.

It should surprise nobody that I believe the nature of these tertian fevers was caused by the prevalence of the acid rather than alkaline contents in the body, i.e. bilious humours. Indeed, in such an extremely cold and stormy season, which remained freezing until midsummer, after the consumption of foods containing mucose juices, what could possibly have produced such an abundance of bile that led to such abundance of bile and the onset of such widespread fevers for so long? Numerous illustrious professors, including Ettmüller, are in basic agreement with this opinion. The aforementioned believes the more immediate cause of intermittent tertian fever to be the saline-acid ferment, which is more volatile and active in regular fevers but is affected by viscid substances in irregular fevers.

XXVII. As well as the poor air quality, an extremely common cause of this epidemic, a further and no less important factor that also produced acid dyscrasias in the humours was certainly the consumption of poor quality food, such as grain spoilt by the blight epidemic or the excessive, unrestrained consumption of fish. Our country-folk are not used to the latter, as their stomachs are not accustomed to richer food, and fish therefore tends to putrefy, i.e. easily become acidic. This putrefaction is most clearly displayed by acidity. Other factors include the muddy water drawn from wells, which was semi-putrid, and finally the northerly winds, which are also known as ‘dispensers’ of nitrous acid. I therefore believe that these were more probably the causes or common sources of these fevers than any others, and that they are not to be explained by celestial intervention, as if the stars were looking down on the country-folk more malignantly than those living in towns, as if the latter were more virtuous. Furthermore, it is unlikely that celestial influence could be limited to such a restricted area and that the blame may be placed on underground exhalations, as there was no earthquake or antra and abysses of Charon in our vast valley to either the north or south of our region that might have resulted in such pernicious exhalations and polluted the air.

XXVIII. As far as the internal cause is concerned, what we call “conjunct”, this lies in the thick, viscid mucus alone, together with an acid ferment that is either to be found in the stomach, according