that very often it escapes man's notice. Indeed, at times, those who are infected and are therefore carriers show absolutely no signs of the disease but are still capable of infecting another of the same species. An example of this phenomenon is that of syphilis. It is quite frequently the case that a man is infected with syphilis without realizing by a woman suffering from the disease, and he then infects his own wife who, after a couple of days, begins to show all the symptoms of gonorrhoea or develop buboes. This inevitably leads to terrible fights and arguments between the married couple. The wife knows she has done no wrong, and does not stop cursing her husband for being infected with that terrible illness. The husband believes he is perfectly healthy because he shows absolutely no symptoms of the infection, and seriously doubts his wife's faithfulness. The following should be consulted on this subject: Paolo Zacchia (Quaset. Med. Leg. Book III. quaest. VI), Mercuriale and Gaspare de Rejes (De Morb. Gal. Camp. Elis. quae LX. num. XII). As far as the consumption of beef is concerned, one should keep in mind what Teodorico Skenkio writes in Hist. humor. gen. Ch. 2: "there was once an argument between butchers and buyers because the former were selling beef they had purchased and slaughtered in Hungary; the latter had realized that those animals were infected with a disease that was characterized by bloody excretions and which led to the death of a considerable number, and there was no doubt it was transmitted from one to the other. The doctors of Padua were summoned for their advice and they said the meat was suitable for human consumption, since it was a particular kind of infection that became harmless and cured if the animals were exercised before being slaughtered". In his erudite work The Miracles of the Dead, Federico Garammanno says that the doctors of the Veneto disagreed with this as they believed that this kind of meat was contagious and cadaveric. Fabio Paolino, a doctor from Udine (Prael. Marciae) tried to resolve the dispute with the following opinion: "If that meat was truly indispensable, before being eaten it should have been soaked in salt and vinegar, discarding the liver and intestines since this is where the heart of the disease lies". Everyone is free to decide which precautions should be adopted and to decide whether they believe them to be sufficient.

So what should be done in the face of such a lethal disease that seems to be threatening the bovine species with extinction? I
believe that first and foremost we should concentrate on how to defeat it or at least to alleviate it, by resorting to universal remedies (since we do not have any particular or specific antidotes at our disposal), that are able to expel it and bring it to the surface, following the observations that the oxen that did actually recover did so after coming out in ulcers, boils and tubercles on the skin. I believe that any treatment of this malignant fever should respect the same criteria adopted by competent doctors when treating smallpox fever in children, taking the incubation period and the emergence of symptoms in due consideration. During the incubation period anything that increases the body heat should be used with caution to avoid increasing the fever and the temperature of the blood mass, which are directly linked to changes in the digestion as governed by Mother Nature. It is therefore a serious mistake to resort to cardiac stimulants and abundant wine with lots of theriac in particular. There is reason to believe that inappropriate remedies have caused more deaths than the actual fever. There is no lack of learned writers of practical medicine who recommend the use of substances to heat the body when fever breaks out in variola-related diseases. While this dissertation was being printed, I had occasion to read what a friend sent me, written by the learned doctor Giovanni Maria Lancisi, eminent archiater and close friend of Pope Clement XI, who was consulted on this disease. Amongst various other precepts, he recommends combining acids with cardiacs. Antidotes should be used when the fever rises. Once the illness has developed and it is at its peak, antivenins should be used more.

We now come to the subject of treatment, and it is this very topic that is requested with the most insistence. Blood-letting is not particularly useful and it is now carried out less frequently. Nevertheless, the disease has not become less ferocious; on the contrary, it has become even more lethal. If the truth be told, just like purgatives, bleeding is to be avoided in all kinds of epidemics. Celsus (Book II, Ch. XII) wrote that, “Blood should not be let too readily, and the abdomen should not be moved by a triviality”. In variola fevers in children who are two or three years old, blood is removed using scarified cupping-glasses and, in some places, phlebotomy is also done when fever breaks out. I believe that in the case of this bovine epidemic, blood-letting is not only appropriate but also necessary to reduce the blood mass and thus slow down its
fermentation and circulation. As I have already mentioned, since ox blood is dense and viscous by nature and inclined to clotting, and since this poison belongs to the group of those that give greater rise to clotting, which other remedy should be adopted to help the ailing ox, who has such difficulty breathing because of the haematic concretions in its arteries, veins, lungs and heart if not blood-letting? It should also be pointed out that robust, fat oxen are afflicted more by this contagion than the frailer ones that can barely stand on their legs. During this kind of fever, which, if one looks more closely, is no different from the so-called inflammatory kind (for example in pleurisy, pneumonia and angina) this is therefore why blood should be let so it cannot clot together when the disease is at its peak. Anybody wishing to do so, may voice their objections against this kind of intervention until they become hoarse because I am unable to see why (if it is legitimate to make a comparison with the fever that afflicts men during the plague), I repeat I am unable to see why these poor beasts, suffering from fever, with eyes hazy with tears and begging for help, should be refused this excellent remedy. One must come to the conclusion that the characteristics of this disease and the great abundance of fodder available this year are such as to make blood-letting necessary, but at the very moment the fever rises again, when the animal still has the strength. This is the very same principle applied during pestilential fevers by illustrious doctors such as Senerio, Septalio, Antonio Ponce Santacroce, Fracastoro and other great writers. I myself have had the chance to observe how these animals still retain their vigour even during the middle of the disease. It has been observed that if they are taken out of their stalls and taken to the meadows to see if they want to graze, their gait is sure and if they are left alone, they soon return to their stalls. As far as the vein is concerned, there is not much to say. It makes no difference which is chosen as long as blood is drawn to reduce the turgor of the vessels.

A broad, red hot iron should be used to make cauterizations on both sides of the neck. By doing so, ulcers will be formed that are a good substitution for the vesicants. The ears should also be pierced using a rounded iron and the root of hellerbore should then be applied to the perforations, as recommended by writers of veterinary medicine. Likewise, the jowls under the chin should be perforated, and a stiff cord called 'seton' inserted in the perfora-
tions to create a natural outlet for the poison in question. It has been proven that not one ox escaped this disease unless they developed blisters and abscesses of the skin, allowing the fetid and corrupt matter to drain away; nor have I ever heard of the disease recurring in an ox whose blood had been cleansed in this way. This is in accordance with the dictum in the sixth book of Hippocrates on *Epidemics* (Sect. III), in which he writes: “For wherever any of these disorders were digested and turned to suppuration, there most of them did well”. The reports of the much-praised Fracastoro should also be mentioned (Book I, Ch. XII): “Those oxen in whom the disease travelled from the throat to the shoulders and then to the feet recovered; For most of those in whom the illness followed a different course died”. The mouth and tongue should frequently be rinsed with vinegar and salt. Massage should also be done several times a day to aid respiration and to prepare the skin for the nervous stimuli that result in sweating and to aid the circulation of the arteries in the glands.

As in variola fevers, swellings and crusts often form in the fauces so that it is difficult for the animal to take anything by mouth. It has been shown that placing in the fauces a green willow branch covered in butter, one arm long if not longer, is an effective way of removing that obstruction.

As far as internal remedies are concerned, these are to be found in the three kingdoms of nature. Countless cardiac plants are to be found in the plant kingdom. Brews can be made using leaves of water germander, blessed thistle, dittany, centaur, gentian roots, potentilla, scorzonera and the like. Chicory may be added to all of these to moderate the heat. Two or three pounds of these brews should be administered two or three times a day. Once the fever begins to drop, the brews should be stronger to encourage expulsion. Another suitable potion to fight this lethal disease and increase diaphoresis is the great antiseptic camphor, once it has been burnt and added to water. The powder of the aforementioned plant dissolved in thistle water may also be administered.

If we wish to suggest one particular medicinal from the vegetable kingdom to treat this malignant fever, I would like to look more closely at the powerful antifebrile, Peruvian bark, commonly known as “quinine” to see if it might prove an effective remedy. There is no doubt that this remedy is remarkably effective in recur-
ring fevers and in intermittent malignant tertian fevers especially, which frequently lead to the death of the patient at the onset of the abscess. I mentioned these kinds of fevers in my Epidemic Constitutions in Modena. This antifebrile medicine can get rid of or alleviate the fever in such a way that the patient does not risk death during the onset of the abscess. I have hardly ever had the occasion to observe the interruption of constant or inflammatory fevers once quinine has been administered. Nevertheless, if the reasoning and experiments of Riccardo Mortoni are to be believed, and who sees every kind of fever as a poison that threatens the vital spirits, why should it not be possible to test the virtues of that antifebrile? Especially in view of the fact that this continuous, acute fever in oxen is identical to the continuous ones that accompany fevers in men. However, resorting to the knowledge of the ancients, Giuseppe Aromatario (Par. pr. part. II. de Rab. Contag.) makes a clear distinction between the fevers of men and those of animals and calls them, the first and the second. One can therefore administer three ounces of quinine (nowadays, one tends to increase the dosage of this medicinal) in an infusion of ten or twelve pounds of thistle water or diluted wine. This infusion should suffice for four or five doses to be administered two or three times a day when the fever rises and the ox falls ill.

The animal kingdom also offers a vast variety of remedies. The best is hartshorn either in an infusion, tea or any other kind of preparation. Broth of vipers, which alleviates fever, can be administered twice a day, dissolving one drachm in the same amount of lukewarm cardiac water. However, a tea made with one or two vipers in cardiac water might be more effective and the fever could disappear within just a couple of days. Amongst the other symptoms, oxen are also afflicted by difficulty breathlessness and stertorous respiration, spermacete is to be recommended as a remedy as it dissolves the haematic concretions and alleviates asthma. A suitable dosage is two drachms dissolved in lukewarm wine. The mineral kingdom also plays its own particular role, in particular those minerals that are not easily transformed by body heat or digestion, as is the case with substances from the plant and animal kingdom and which can therefore be absorbed to the full. An extremely effective remedy to make the poison leave the body is diaphoretic antimony, which is both easy to prepare and cheap. This is nothing
other than raw antimony powder which is roasted with glowing coal and a stick of red-hot iron, either in a crucible or a bronze mortar, three or four times with the addition of equal amounts of saltpetre each time it is roasted. The use of vermicides is more than justified as earthworms and roundworms have been found in the animals' intestines. This is more than likely since vermination has also been observed during human plagues not only in the stomach but also in the intestines and other organs. The Jesuit Father Atanasio Kircher himself was witness to this during the plague, and he called it "animate putrefaction". A particularly suitable remedy is an infusion of mercury, half a pound placed over hot ashes in one of the aforementioned waters and then decanted. On the subject of vermination, authors cannot agree whether acidic or sweet substances should be used to kill worms. There is no doubt, however, that in a mild form, mercury is very effective and can be administered frequently. The same results can be achieved using petroleum from the Modena region as it is not only a vermicide but also stops putrefaction and induces diaphoresis. When the country-folk in our region realize the calves have worms owing to their smell, they give them drops of petroleum with milk.

As far as their diet is concerned, it should consist of barely or wheat ground up in water and administered as an infusion. An infusion of clean hay harvested in the month of May is a suitable beverage. I myself have observed that the animals enjoy this beverage. Close attention should also be paid to the external conditions. The oxen should be kept in warm barns and covered with blankets, protecting them from the cold air as much as possible; the barns should be fumigated with berries of juniper, ferula and the like.

This is all there is to say as regards treatment. At this point I would like to end my lecture by offering some comments on preventive measures since it is much better to stay well than to heal, just as it is better to foresee the storm and avoid it rather than being forced to run to safety. Once the oxen have finished toiling on the fields for the season and are brought back to the barns to be dewormed, just like the soldiers in winter camps, these places must be kept as clean as possible. They should be fumigated frequently and any other kinds of animals such as sheep and pigs must be kept out. Farmers usually heap up the dung of the animals inside the barn to make it warmer during the winter. It is sufficient if they
remove the excrement once a day. I also advise that they scrape off the plaster off the walls, just as the Jews had to do, on the basis of a law relating to rooms, (Lev. Ch. XIV), when a person suffering from leprosy had lived there; they then had to plaster the walls with fresh lime. In this case it suffices if they encrust the walls, as the smell of fresh lime might harm the oxen within during the winter. Attention is to be paid to their feed, to make sure it is both fresh and clean. The hay, straw and other fodder must be protected from the rain and downpours. They should be fed in moderation to make sure they do not put on too much weight for this year, the aim is their good health and not to fatten them up. They should be fed more during the summer when they are kept so busy threshing grain, cultivating and hauling wagons that they lie exhausted on the ground. A more moderate diet is to be recommended this winter in particular as leanness seems to be a safer condition than fatness.

Massage should be practiced several times a day using not only the hand, but also a curry-comb. This is beneficial to their blood and keeps it fluid and helps drain off any excess, especially if the massage is vigorous. Indeed, this kind of massage does good in numerous ways and as Celsus, quoting Hippocrates (Book II, Ch. XIV) wrote: “Vigorous massage makes the body strong and hardy while gentle rubbing makes it soft and pliable”. If they should become too fat this year because the food supply is so abundant, venesection may be performed, but a suitable diet and purgatives are preferable. Finally, now that observation has demonstrated that the animals that escaped the disease this season did so since Nature fought this lethal infection with the excretion of the contagious matter through the ulcers of the skin all over the body, then it would be advisable to find some outlet for the remaining germs of the illness to gradually escape, if there are any. This hypothesis is also stated in one of Hippocrates’ works, in 6. Epid, and is expressed as follows: “The very same decubitus that cures diseases is also able to prevent them”. This sentence is somewhat enigmatic, as are all Hippocrates’ sayings, but Vallesius (Section III. ex Vallesius) interprets it admirably when he says that, “Decubitus that have occurred naturally-are remedies for other diseases and prevent the very same diseases if they are done well, but it must not be just any decubitus, but the one that is capable of removing those very same diseases”. It would therefore be beneficial to perforate the jowls of
the healthy oxen below the chin using a red-hot iron and to insert a stiff cord in the perforations so they remain open for a long time. In this manner the impurities that are at the heart of this disease and which usually accumulate in the head may be drained off.

But why do I tax my skills and rack my poor brains to investigate the nature and causes of this disease and to apply medical precepts to veterinary science? For some time now our ruling Prince, who has been sent by the heavens to protect this city, has recognized the true cause of this violent epidemic. It is clear that it is nothing other than a punishment from God himself, who is rightly outraged at our crimes. He himself has given us the only suitable remedy – praying for days on end, until the wrath of Heaven is appeased. Such an infinite number have closed their workshops and streamed to the splendid Cathedral in this city that there is no living memory of such a mass of people united together in reverence of God. And this fervour has not abated over time, as was the case on other occasions. On the contrary, people also flocked to other churches in the city and the example of other cities afflicted by the same disease was followed, and public prayers were said, imploring divine intervention. This sudden change in the state of affairs and the devotion shown here and elsewhere in fear of worse to come, make one recall the great consternation in the city of Rome which Livy, with his monumental history of Rome, (Deca. III. Book VI. Ch. VI) described so aptly. Hannibal and wiped out the Roman army and was so close to the city gates that the cries of the trepidant city could be heard. Overcome with fear, the people of Rome flocked to the temples and altars of the Gods to sacrifice victims and take vows in exchange for their safety. Women can be seen in tears with their hair loose and children in their arms, all running to the temples to place images of the Gods on bracelets, rings and gold coins, in fear of the iron fetters and chains of the Carthaginians. Silius Italicus described the same state of consternation in a very impressive poem (Book VII). At this point I would like to quote the lines of this poet that are of such elegance and which are so appropriate to our state of affairs: “Great is the fear of the Gods and it increases when general confusion dominates; very few are the altars that offer auspicious signs”.

You, dear listeners, should judge for yourselves whether these two lines are appropriate for our times.
XIV Oration

Given on 6th November 1712

The physician of frail health is more suited to practising medicine than one of excellent health.

The agreement of all the sciences and good arts, whose protection ensures civic life rules and remains stable, is great and worthy of admiration, provided one is never in contrast with the other. Indeed, because of their common ties of kinship they come together to in some way perform dances with outstretched hands, and some are tied to one another by a bond so close that they seem born as sisters rather than as companions for the common good. These are Law and Medicine, both very noble and very ancient disciplines, whose honour and image is not given by any age, but is fairly correct and prone to perfection.

These first disciplines raised their heads almost at the very beginnings of the world, when men had founded cities and citadels in which to spend their civil life, after first wandering in the countryside, then practising hunting and sheep farming and living on little. This was because the nature of man was corrupt due to the miserable fall of the forefather, and the vices of the spirit no less than those of the body began to worm their way into the human race. So in order to maintain the integrity of the civil and natural body as much as possible, it was fitting that these custodians of human happiness be present, in as much as one would ensure proper behaviour and punish the ill-doer, and the other would put in order the humours of the body fighting with one another. The practice of law was thus brought into the world, laws were established, courts constructed, and magistrates and judges elected to assign to each one his rights. Medicine was similarly discovered,
due to the fickle nature of the weather, perhaps more so than food, and other chance cases, when diseases infested men in mass or sporadically. It was certainly very simple at first, being based on the knowledge of a few herbs, but gradually became a form of art, with the building of public gymnasiums and the opening of pharmacies where prepared medicines able to maintain and restore health to human bodies every time this moved away from its natural state were placed in labelled jars and stored. So it is not possible to see any city or citadel that does not have judges and physicians, access to whom is not free and open to everyone as to tutelary deities, every time there is a compelling need. Nor may anyone, no matter how well adorned with noble customs and endowed with a varied education, be thought so well suited to correctly practising these disciplines as to not feel the lack of anything at all both in the physician and the judge. That which Socrates wished for in both, as we read in Plato, is certainly interesting and worthy of much more attention: “A good judge must not be a young man, but an old one to whom knowledge of wickedness has come late in life, not as a feature he perceives in his own character, but as an evil whose nature he has learned after long practice to discern in other people”. He then wrote that the genuinely capable physician emerges if he has, “in addition to his knowledge of medical science, as wide and as early an acquaintance as possible with serious illness; in addition he should have experienced all kinds of disease in his own person”. So I have taken up this second assertion to show the subject of today’s speech, which is that a physician of frail health is more suited to correctly practising the medical art than one who is robust and enjoys good health.

Noble listeners, I see that I have entered into a truly difficult field, to the point of fearing that already while presenting my aims someone may have called me a “paradoxologist” and, as in Plato’s Republic, that it has been nothing but a pure and simple fiction of invention, such that the arguments I am about to offer as proof can only be defined as fictitious and false. But if you will listen kindly, as I hope, I am confident I will find easy assent to my proposal.

So firstly, if nothing more is required in a good physician than experience, which is generally known as the master of things, or rather discoverer of both mechanical and liberal disciplines, for which Manilius writes:
Experience created art through many accidents, as an example shows the way,

who, I ask you, will not define as a genuinely expert physician he who is frail of health, subject to various diseases and for this reason an expert on what it means to fight death in acute diseases, what it means to be immobilised in a bed or chair for many months with chronic ones? What it means that in gout the joints are contorted, in rheumatism the limbs torn, in a colic the bowels destroyed? How intolerable the pain in the ears and the eyes, what kind of torment caused by a stone stuck in the kidneys or roaming around the bladder? What kind of sentence is syphilis day and night? And indeed, would it not be something incredible to see physicians, devoted to practice, speckled with Celtic plague, because they have caught a venereal disease in payment and recompense for their efforts? In fact they are also men, and do not think they are exempt from anything that regards men, especially in our age, during which the Gallic plague, once foreign and unknown in our land (indeed, it was brought to Europe from barbarous regions), has received our citizenship and been ennobled by the name of syphilis by the famous philosopher, physician and poet Fracastoro in an elegant, illustrious poem.

This is real experience free of any calculation, not sought who knows where with conjectures, but procured by scientific knowledge itself, such that physicians of this type may really be called "experts" and to whom experience and a solid doctrine are associated. Indeed, how can one compare he who administers to the sick the much exalted defences of the art in the most correct and most prudent manner with he who, not only once nor in a single type of illness, opts for remedies that are either ineffective or noxious and at times even worse than the illness itself? Such often happens with some medicines made up of various substances and most of all those opposed to one another. The result is that, after having taken them, it is necessary to have another remedy on hand that will very quickly eliminate those substances from the body. On entering the baths to wash according to the custom of the day and seeing a dirty, putrid bath, Diogenes asked the attendant: "Those who wash here, where do they wash?". Why should not the same thing be said of some remedies, that an excess of credulity and
artificial synthesis announce as being of great virtue, when their odour and appearance alone are fit to destroy the order of the sensitive soul? So it could be asked: “What remedy do those who cure themselves like this treat themselves with?” It is not as easy for a physician of frail health to be taken in by these errors, or to deceive or be deceived, as one who has himself known that serious disorders at times call for these remedies, that the more they have high sounding names, the more perilous and damaging they are for the constitution, which, as it delights in simple food, so is reinvigorated more easily by simple remedies. So I do not think there will be anyone who does not agree with me that a physician of poor health is more suited to practising medicine in that he learns to treat the poor sick not ignorant of the ills, instructed not by the dangers of others, but by his own.

I usually compare medical practice with the work of the obstetrician (if it be permissible to compare a noble task with a lower duty). She assists the woman giving birth or in labour, who, if Lucina favours her a little, is now already seated on the birth chair, in the throes of a great effort to give birth to the baby and cries out in a loud voice: “Queen of the heavens, help me!” The obstetrician watches her, ready to take the baby with open hands, exhorting the suffering woman to courageously put up with the pains, saying that birth is the work of nature and the emergence of the foetus the task of she who takes it, that with wailing and outcries the spirit and the strength are weakened, that you have to await greater efforts to make the mature fruit emerge, that the hands have to be brought near only in case of extreme necessity and when the foetus is already dead. The good obstetrician in this way cajoles the woman giving birth partly with words and partly with applications to make her uterus and womb softer. But, please consider this, honoured listeners, for a woman placed between these anguished, crying women, which obstetrician do you think most appropriate? Perhaps the sterile one, who has never been pregnant and never given birth, or rather the one who, having the gift of fertility, has had many babies and spent her life practising the craft of the obstetrician? I do not at all doubt that you, rightly and wisely, will say that the latter rather than the former is more suited to assisting the woman giving birth; indeed, this is so in keeping with reason that in antiquity, according to the testimony of Plato in the Thea-
etetus, it was prohibited by law for any sterile woman to work as an obstetrician: "human nature is weaker in the arts in which it has no experience". Why should not the same thing be said of the physician of frail health? He not rarely knows from personal experience that the cure of illnesses is a product of nature rather than medicine, he knows that it is necessary to await the maturity of the humours to exclude pregnancies at risk and that crises must not be anticipated or distorted. In short, he knows that the physician who has had experience of various kinds of illness is self-taught, that is, taught by himself as if by a tutor, and must be preferred to the other specific parts of medicine, particularly for his method of care. This is because he knows which remedies must be taken, in what quantity, in what amount, and, most importantly, at what times, because there is nothing more dangerous than medicine not administered at the right time.

I will not say then with how much kindness and singular compassion the physician of frail health behaves towards his patients, how easily he makes them obey him. The physician who is usually well, however, often behaves in an excessively sharp and imperious manner with his patients, at times scolding them if by chance they have not drunk their medicine down to the last drop, have not eaten the food at the prescribed hour or have not followed all the indications given precisely. So he often aggravates both the spirit and the illness of his patients. It is rather admirable though how much courage and hope the ill person takes on when he thinks to himself that he is in the hands of a physician who is not only an observer, but has himself fought against various cruel diseases like a strong gladiator in the arena. How willingly he will listen to accounts of how he recovered from this or that illness, which had to be confronted and driven back; he who is now well thanks to the orders, to the many medicines and multitudes of physicians, almost always a bad omen for the ill.

I know for sure that it is rather difficult to convince people of this truth. I will not say the masses, but also wise men, who as soon as they run into a physician who reveals what he is by his face, his way of speaking, his gait, at times also supporting his right side with a stick, have difficulty restraining a laugh, thinking those unable to look after themselves incapable of looking after others. So, when they are ill, they more willingly entrust their health to