

thinking I might publish my views, I did not want anyone else detracting from their novelty. But despite my efforts Regius got hold of a copy – though I cannot imagine how – and he extracted from it his splendid account of the movement of the muscles. He could have lifted much else besides so as to fill out his book, but I am told that he only got hold of my manuscript when the printing of his own work had almost been completed...

AT IV TO THE MARQUESS OF NEWCASTLE, 23 NOVEMBER

1646

(569) ... I agree entirely with your Lordship's judgement about the chemists. I think they use words in an uncommon sense only in order to make it seem that they know what in fact they do not know. I think also that what they say about reviving flowers with their salts is only an idle fancy, and that the powers of their extracts are quite different from the virtues of the plants from which they are taken. This is clear empirically because wine, vinegar and brandy, three extracts made from the same grapes, have quite different tastes and powers. In my view, the chemists' salt, sulphur and mercury are no more different from each other than the four elements of the philosophers, and not much more different from each other than water is from ice, foam and snow. I think that all these bodies are made of the same matter, and that the only thing which makes a difference between them is that the tiny parts of this matter which constitute some of them do not have the same shape or arrangement as the parts which constitute the others. I hope that your Lordship will soon be able to see this explained at some length in my *Principles of Philosophy*, which is about to be printed in French' ...

(573) I cannot share the opinion of Montaigne² and others who attribute understanding or thought to animals. I am not worried that people say that human beings have absolute dominion over all the other animals; for I agree that some of them are stronger than us, and I believe that there may also be some animals which have a natural cunning capable of deceiving the shrewdest human beings. But I consider that they imitate or surpass us only in those of our actions which are not guided by our thought. It often happens that we walk or eat without thinking at all about what we are doing; and similarly, without using our reason, we reject things which are harmful for us, and parry the blows aimed at us. Indeed, even if we expressly willed not to put our hands in front of our head when we fall, we

1. The French version of the *Principles*, by Claude Picot (c. 1601–68), was published in Paris in 1647.

2. Michel de Montaigne (1533–92), author of the famous *Essays*, in which he maintains that all human virtues can be found in non-human animals.

could not prevent ourselves. I consider also that if we had no thought then we would walk, as the animals do, without having learnt to; and it is said that those who walk in their sleep sometimes swim across streams in which they would drown if they were awake. As for the movements of our passions, even though in us they are accompanied by thought because we have the faculty of thinking, it is nevertheless very clear that they do not depend on thought, because they often occur in spite of us. Consequently they can also occur in animals, even more violently than they do in human beings, without our being able to conclude from that that animals have thoughts.

In fact, none of our external actions can show anyone who examines them that our body is not just a self-moving machine but contains a soul with thoughts, with the exception of spoken words, or other signs that have reference to particular topics without expressing any passion. I say 'spoken words or other signs', because deaf-mutes use signs as we use spoken words; and I say that these signs must have reference, to exclude the speech of parrots, without excluding the speech of madmen, which has reference to particular topics even though it does not follow reason. I add also that these words or signs must not express any passion, to rule out not only cries of joy or sadness and the like, but also whatever can be taught by training to animals. If you teach a magpie to say good-day to its mistress when it sees her approach, this can only be by making the utterance of this word the expression of one of its passions. For instance it will be an expression of the hope of eating, if it has always been given a titbit when it says it. Similarly, all the things which dogs, horses and monkeys are taught to perform are only expressions of their fear, their hope or their joy; and consequently they can be performed without any thought. Now it seems to me very striking that the use of words, so defined, is something peculiar to human beings. Montaigne and Charron¹ may have said that there is a greater difference between one human being and another than between a human being and an animal; yet there has never been known an animal so perfect as to use a sign to make other animals understand something which bore no relation to its passions; and there is no human being so imperfect as not to do so, since even deaf-mutes invent special signs to express their thoughts. This seems to me a very strong argument to prove that the reason why animals do not speak as we do is not that they lack the organs but that they have no thoughts. It cannot be said that they speak to each other but we cannot understand them; for since dogs and some other animals express their passions to us, they would express their thoughts also if they had any.

1. Pierre Charron (1541–1603), theologian and moralist.

I know that animals do many things better than we do, but this does not surprise me. It can even be used to prove that they act naturally and mechanically, like a clock which tells the time better than our judgement does. Doubtless when the swallows come in spring, they operate like clocks. The actions of honeybees are of the same nature; so also is the discipline of cranes in flight, and of apes in fighting, if it is true that they keep discipline. Their instinct to bury their dead is no stranger than that of dogs and cats which scratch the earth for the purpose of burying their excrement; they hardly ever actually bury it, which shows that they act only by instinct and without thinking. The most that one can say is that though the animals do not perform any action which shows us that they think, still, since the organs of their bodies are not very different from ours, it may be conjectured that there is attached to these organs some thought such as we experience in ourselves, but of a very much less perfect kind. To this I have nothing to reply except that if they thought as we do, they would have an immortal soul like us. This is unlikely, because there is no reason to believe it of some animals without believing it of all, and many of them such as oysters and sponges are too imperfect for this to be credible. But I am afraid of boring you with this discussion, and my only desire is to show you that I am, etc.

AT IV

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TO PRINCESS ELIZABETH, DECEMBER 1646

Never have I found such good news in any of the letters I have been honoured to receive from Your Highness as I found in that of 29 November. For it leads me to think that you now enjoy better health and greater happiness than previously; and I believe that these are the two chief goods that one can possess in this life — leaving aside virtue, which you have never lacked. I am not taking any account of that slight illness which the doctors claimed would give them employment;¹ for although it is sometimes a little uncomfortable, I come from a country where it is so common among young people, who are otherwise quite healthy, that I do not consider it an illness so much as a sign of health and a means of warding off other illnesses. Through practical experience our doctors have learnt certain remedies for it, though they advise against trying to get rid of it in any season other than spring, when the pores are more open and so the cause can be eliminated more readily. Thus Your Highness has very good reason for not wanting to try a remedy for this illness, especially at the beginning of winter, which is the most dangerous time. And if the discom-

1. In her letter of 29 November 1646, Elizabeth had mentioned a swelling in her hands, for which her doctors had prescribed various remedies.

fort persists till the spring, it will be easy to drive it away by taking some gentle purgatives or refreshing broths which contain nothing but known kitchen-herbs, and by not eating food that is too salty or spicy. Being bled may also be quite useful; but since there is some danger in this remedy, and its frequent use shortens one's life, I advise Your Highness against it unless she is accustomed to it. For when one has been bled in the same season for three or four years in succession, one is almost forced to do the same each year thereafter. Your Highness also is quite right not to want to try any chemical remedies. It is useless having long experience of their power, for if you make the slightest change in preparing them, even when you think you are doing your best, you can wholly change their qualities, and make them into poisons rather than medicines.

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It is almost the same with science, when it is in the hands of those who try to apply it without knowing it well. For whenever they believe they are correcting or adding something to what they have learnt, they change it into error. The proof of this can, I think, be seen in the book of Regius,¹ which has finally seen the light of day. I would make some comments about it here, if I thought he had sent a copy to Your Highness. But it is so far from here to Berlin that I believe he will await your return before presenting it to you; and I shall also wait before telling you my views about it.

I am not surprised that in the country where you are² Your Highness finds that all the learned people she meets are wholly preoccupied with scholastic views. For I observe that even in Paris and the rest of Europe there are few other learned people, and if I had known this beforehand I would perhaps never have had anything published. Nevertheless I am consoled by the fact that no one has entered the lists against me, although I am certain that many people have not lacked the will to attack me. Indeed I receive compliments from the Jesuit fathers, who I have always believed would have the greatest interest in the publication of a new philosophy and would be least likely to pardon me if they thought they could reasonably find any fault in it . . .

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TO CHANUT, 1 FEBRUARY 1647

AT IV

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AT IV

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I cannot rest until I have replied to the most welcome letter I have just received from you. The problems you set would be difficult for wiser men than I to discuss in a short time, and I know that however long I spent I could not solve them fully. Consequently, I prefer to write at once what my

1. Regius' book *Fundamenta Physices* was published in 1646.

2. Princess Elizabeth had recently moved to Berlin.