

41. *"The Freedom of the Human Mind"*

To William Green Mumford

Monticello June 18, 1799

Dear Sir,

I have to acknowledge the receipt of your favor of May 14. in which you mention that you have finished the 6. first books of Euclid, plane trigonometry, surveying and algebra and ask whether I think a further pursuit of that branch of science would be useful to you. There are some propositions in the latter books of Euclid, and some of Archimedes, which are useful, and I have no doubt you have been made acquainted with them. Trigonometry, so far as this, is most valuable to every man, there is scarcely a day in which he will not resort to it for some of the purposes of common life. The science of calculation also is indispensable as far as the extraction of the square and cube roots; Algebra as far as the quadratic equation and the use of logarithms are often of value in ordinary cases: but all beyond these is but a luxury; a delicious luxury indeed; but not to be indulged in by one who is to have a profession to follow for his subsistence. In this light I view the conic sections, curves of the higher orders, perhaps even spherical trigonometry, Algebraical operations beyond the 2d dimension, and fluxions. There are other branches of science however worth the attention of every man: astronomy, botany, chemistry, natural philosophy, natural history, anatomy. Not indeed to be a proficient in them; but to possess their general principles and outlines, so as that we may be able to amuse and inform ourselves further in any of them as we proceed through life and have occasion for them. Some knowledge of them is necessary for our character as well as comfort. The general elements of astronomy and of natural philosophy are best acquired at an academy where we can have the benefit of the instruments and apparatus usually provided there: but the others may well be ac-

quired from books alone as far as our purposes require. I have indulged myself in these observations to you, because the evidence cannot be un-useful to you of a person who has often had occasion to consider which of his acquisitions in science have been really useful to him in life, and which of them have been merely a matter of luxury.

I am among those who think well of the human character generally. I consider man as formed for society, and endowed by nature with those dispositions which fit him for society. I believe also, with Condorcet, as mentioned in your letter, that his mind is perfectible to a degree of which we cannot as yet form any conception. It is impossible for a man who takes a survey of what is already known, not to see what an immensity in every branch of science yet remains to be discovered, and that too of articles to which our faculties seem adequate. In geometry and calculation we know a great deal. Yet there are some desiderata. In anatomy great progress has been made; but much is still to be acquired. In natural history we possess knowledge; but we want a great deal. In chemistry we are not yet sure of the first elements. Our natural philosophy is in a very infantine state; perhaps for great advances in it, a further progress in chemistry is necessary. Surgery is well advanced; but prodigiously short of what may be. The state of medicine is worse than that of total ignorance. Could we divest ourselves of every thing we suppose we know in it, we should start from a higher ground and with fairer prospects. From

Hippocrates to Brown we have had nothing but a succession of hypothetical systems each having its day of vogue, like the fashions and fancies of caps and gowns, and yielding in turn to the next caprice. Yet the human frame, which is to be the subject of suffering and torture under these learned modes, does not change. We have a few medicines, as the bark, opium, mercury, which in a few well defined diseases are of unquestionable virtue: but the residuary list of the materia medica, long as it is, contains but the charlataneries of the art; and of the diseases of doubtful form, physicians have ever had a false knowledge, worse than ignorance. Yet surely the list of unequivocal diseases and remedies is capable of enlargement; and it is still more certain that in the other branches of science, great fields are yet to be explored to which our faculties are equal, and that to an extent of which we cannot fix the limits. I join you therefore in branding as cowardly the idea that the human mind is incapable of further advances. This is precisely the doctrine which the present despots of the earth are inculcating, and their friends here re-echoing; and applying especially to religion and politics; 'that it is not probable that any thing better will be discovered than what was known to our fathers.' We are to look backwards then and not forwards for the improvement of science, and to find it amidst feudal barbarians and the fires of Spital-fields. But thank heaven the American mind is already too much opened, to listen to these impostures; and while the art of printing is left to us, science can never be retrograde; what is once acquired of

real knowledge can never be lost. To preserve the freedom of the human mind then and freedom of the press, every spirit should be ready to devote itself to martyrdom; for as long as we may think as we will, and speak as we think, the condition of man will proceed in improvement. The generation which is going off the stage has deserved well of mankind for the struggles it has made, and for having arrested that course of despotism which had overwhelmed the world for thousands and thousands of years. If there seems to be danger that the ground they have gained will be lost again, that danger comes from the generation your contemporary. But that the enthusiasm which characterises youth should lift its parricide hands against freedom and science, would be such a monstrous phenomenon as I cannot place among possible things in this age and this country. Your college at least has shewn itself incapable of it; and if the youth of any other place have seemed to rally under other banners it has been from delusions which they will soon dissipate. I shall be happy to hear from you from time to time, and of your progress in study, and to be useful to you in whatever is in my power. . . .