MATHEMATICAL FORMATION

As far as I am concerned I feel my not speaking Greek as a humiliation, my incapacity of testing, like you test a silver coin, the sound of the hymns to Demeter, Aeschylus' tragedies or Theocritus's verses. Moreover, I am ready to publicly acknowledge it, on one condition. That the classic humanists also readily declare that they feel it as an equally guilty humiliation their not knowing of Euclid's *Elements*, Apollonius or Perga's Stoics, or Pappus's *Mathematical Collections*. But the classic humanists would not hear of such things.

Yet, Greek thinking is not only mythically expressed, in the fables, but also directly in the theorems. The gateway to the Greek world – without which, in my opinion, one's culture can not be considered complete – is not necessarily Homer. Greek geometry is a much larger gate through which the eye grasps an austere but essential image.

This is the gate that was opened to us some 40, more exactly 44 years ago. We would rapidly go again through the intellectual experience of those great geometricians. We used to study proportions with Thales and Euclid; we would rethink the theory of polars with Apollonius; Achimedes was teaching us how to measure areas; alongside with Plato we would wonder at the incommensurability of the square's diagonal through the diagonal and maybe we were naïvely but poetically conceiving some doctrine of reminiscence, in order to explain the contradictions of the irrational number. It was also with Plato that we would contemplate the five perfect existences, the regular polyhedrons, whose uniqueness puzzled us, but we were not able to grasp their deep meaning.

Have we forgotten all these? Never mind. Culture is, according to I don't know whose definition, whatever is left after you have forgotten everything, that is, virtualities, predispositions. It is superior to instruction and made of knowledge; it is in a way, its qualitative leap. The first luminous impressions that a baby receives in infancy are not to be found in memory. But that does

not mean they are lost. They are somewhere at the foundation of our being, they make up our individuality, our way of reacting.

However, can one speak about a modern humanism, a complete system of sciences, capable to shape a man, based on mathematics? I am positive they can. Moreover, as you know, out of two spirits that are similar from all points of view, the one having geometry on its side will always triumph. The only weakness of such a judgement is that it is a geometrician that makes it. Yet, I know an example illustrating Pascal's affirmation. Take Ion Ghica's letters, crossed here and there by Alecsandri's answers. Here are two spirits in comparable condition. They belong to the same world, have the same political views, lived the same events and stayed in Paris during the same period. But how hollow and tasteless is one of them, the poet of juvenile Rodica, and how pithy, instructive and alluring is the bey of Samos! Alecsandri is incapable to see and unable to grasp the originality of a moment. Alas, neither can he write, actually! The lymphatic and emphatic language of these letters is not at all that of a "king of poetry" (although, thanks God, he did not lack literary exercise) but that of some little Frenchified snob. Whereas Ion Ghica is a classic of our prose. This is by no means accidental, since the former had a literary culture (improvised as it was), while Ghica had attended lectures in analysis at the Polytechnic School, had attended the mining school and it seems he had competed with Délaunay, the famous astronomer at the exams of infinitesimal and integral calculations. It is actually known that he used to be a professor of mathematics at the Academia Mihăileană in Iaşi. What distinguishes the mathematical humanism from the classical one? To put it in just two words: a certain modesty of spirit and some subordination with respect to the object. The structure of a mathematician, even if valorized literarily, brings a certain respect for the conditions created outside us, for the collaboration with the given material. If, for instance, after a period of literary activity in German, someone endowed with the proper qualities would be made by circumstance to write in French, he is not to brutalize the genius of that new language, requesting of it, by any means, the specific effects of the German language.

This conditioning of the content by the container is opposed to the histrionic spirit, which is the tyranny of the cliché. To be histrionic in geometry is impossible, for this would mean to be stupid. An Euclid geometrician who would try to obtain the same theorems within a different system of axioms (for instance Pythagora's theorem in Lobachevsky's geometry) ignores the ABC of the trade.

Nevertheless, we have often seen novel writers who ask for lyric effects from prose, poets who challenge orators or didactical authors in their verse.

Therefore: truthfulness to life, modesty of spirit, subordination with respect to the subject – these are the characteristics of a mathematician's structure. Moreover: the power of comprehending a whole complex of elements in one look, the spirit of synthesis, to put it in one word. In the absence

of this faculty the grasping and the rendering of any reasoning is not possible. Each spirit is capable of local reasonings, of passing from one syllogism to another. But very few are able to orientate a system of syllogisms like an army of marching arguments, according to a final plan.

Without the proper effort we will not be able to regain our long lost knowledge. But their rotting has released the subtlest thinking in the old Greek geometricians. These essences are filling us, bringing us back to life again. Our whole way of being is impregnated by them. That is why we can consider ourselves as the new humanists, the modern ones: not opposed to, but certainly different from the classical humanists.

(A. B.)