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**Was the Greek Enlightenment a Vehicle for the Ideas
of the Scientific Revolution?**

During the 1991 Conference on *New Trends in the Historiography of Science* organized in Corfu, a question frequently aired by the participants was “how did the European phenomenon known as the ‘Scientific Revolution’ spread?”.

Until recently, historians of science have tried to explain why this phenomenon came about in Europe and not, for example, in the Islamic world during the Damascus or the Tabriz scientific renaissance. Since answers to that question are many and varied, we can safely say that a definitive one has yet to be formulated. This question, along with that of how the phenomenon developed, have been at the forefront of historical research into the Scientific Revolution. Very few works, however, have treated the question of how that Revolution spread. A quick perusal of the *Isis* bibliography of the history of science readily verifies this fact: there are extremely few works, and no special category exists on the dissemination of scientific ideas from the centre to the periphery.

In recent years, the European Union has attempted to reinforce its cultural identity by financing scientific projects stressing the cultural similarities of the participating countries. One of these, the “Prometheus” project (1994-1996), involved twelve institutes belonging to nine European countries and tried to explain how the ideas of the Scientific Revolution spread from their countries of origin to the European periphery. This question involves European unification through science, through a common European scientific culture. This appears to have been totally accomplished in some countries of the European periphery as late as the second half of the nineteenth century. And here lies the problem which I shall attempt to analyze in this paper. As concerns the countries where the Scientific Revolution originated, we can state that a common scientific culture based on that Revolution had

developed by the second half of the seventeenth century. The activities of Père Marin Mersenne and Isaac Beeckmann sufficiently demonstrate this: the former with his vast correspondence in his capacity of “Secretary” of the “Europe savante”, and the latter with his hospitable role as a “lien vivant” between the European scholars.

When, however, we consider the part of the European periphery constituted by the Greek-speaking world, things appear to be far less clear. At what moment can we say that this world begins to be aware of and participate in the shared culture of European science, formulated by the ideas of the Scientific Revolution? What were the mechanisms by which these ideas were transmitted to that world? And, to delineate our main subject, what was the role of the Enlightenment to the dissemination of that science?

Historical study of the Enlightenment has too often associated the eighteenth century with the spread of the ideas of the new science to the countries which witnessed the elaboration of these ideas (France, Italy, the United Kingdom, Central and part of Northern Europe). One specific reason explains this tendency: the scientific press of the eighteenth century. From the “*Journaux savants*” to the *Encyclopédie*, scientific ideas during the eighteenth century circulated widely in printed form. At the same time, these ideas were disseminated to the cultured public in the form of scientific books of a popular nature. This contrasts greatly with the beginning of the seventeenth century, when the priest Jean Tarde had to travel from his native Provence to Italy to obtain a copy of Galileo’s book¹. And what a difference from the researcher of our own day who can study the eighteenth century with a considerable volume of easily consulted printed material, in contrast to the largely archival material of the seventeenth century which for the most part remains unpublished.

In fact, if one confines one’s scope to European scholarly society, the ideas of the Scientific Revolution can be said to have spread even before the Enlightenment. The voluminous correspondence of Père Marin Mersenne dating to the 1630’s indicates how the new scientific ideas were circulated and discussed². The main difference between the seventeenth and eighteenth centuries lies in the fact that these ideas were

1. Jean Tarde, *À la rencontre de Galilée: deux voyages en Italie*, Genève 1984.

2. *Correspondance du P. Marin Mersenne*, Paris, vol. I, 1945 - vol. XVII, 1988.

popularized in the latter, and the medium of that popularization was the press.

As concerns the Greek world, a world on the scientific periphery at that period, a glance at the material most readily available (that is books printed in Greek) leads the historian of science to a similar conclusion: that the Greek Enlightenment appears to have provided the venue for the dissemination of the ideas of the Scientific Revolution to the Greek intellectual establishment.

There exist about 140 books containing scientific knowledge that were printed in Greek for the Greek-speaking people of the Ottoman Empire³. These date from the invention of the printing press to the time of the Greek Revolution. An analysis of these books indicates that 35 are concerned with knowledge gained during the Scientific Revolution⁴. If we include —as we must— Nikephoros Theotokis in the Greek Enlightenment, only one of these books dates before this Enlightenment: the book on Spherics and Geography of Chrysanthos Notaras, printed in Paris in 1716⁵. The next book was that on Physics by Theotokis, printed in 1766⁶. The other 33 were printed after 1770.

These statistics are not negated by the publishing boom of the Greek Enlightenment. To mention manuscripts alone, I have found only two manuscript books prior to 1759 that present the knowledge of the Scientific Revolution: the *Physiology* of Vikentios Damodos, of which the oldest manuscript dates to 1738, and the *Epitomé of Astronomy* by Meletios [Michael] Métros, of which the oldest manuscript dates to 1700. On the other hand, since the manuscript tradition lasted throughout all the period of the Greek Enlightenment, we should multiply the 33 printed books mentioned above by a factor of about three if we are to have some idea of the number of the works presenting the knowledge of the Scientific Revolution at this time.

3. For the complete catalogue of the Greek printed and manuscript books on science of that period, see Y. Karas, *Οι επιστήμες στην Τουρκοκρατία, χειρόγραφα και έντυπα*, Athens, vol. I, 1992, II, 1993, III, 1994.

4. E. Nicolaïdis, D. Dialetis, E. Athanasiadis, "Τυπολογία των βιβλίων των θετικών και φυσικών επιστημών του προεπαναστατικού αιώνα (1700-1821)" *Τετράδια Εργασίας* (Center of Neohellenic Research) 8 (1986) 7-38.

5. *Εισαγωγή εις τα γεωγραφικά και σφαιρικά*, Paris 1716.

6. *Στοιχεία φυσικής* ..., Leipzig, vol. I, 1766, vol. II, 1767.

When, therefore, we speak of scientific manuals —printed or in manuscript form— the facts are clear: about 97% of those titles presenting knowledge of the Scientific Revolution to the Greek world up to the time of the Greek Revolution date to the period of the Greek Enlightenment.

So much for the statistics and “quantitative data” of the written material. Were one, however, to seek the history of the transmission of these ideas and of the scientific contacts between the Greek world and Western Europe, one would find a significant parameter within which European science was received by Greek scholars during the Greek Enlightenment, from the mid-eighteenth century to the Greek Revolution.

First of all, however, we should try to answer the following question: if one were to exclude the developments of the Scientific Revolution, what, in fact, differentiates the scientific culture of the Greek world in the Ottoman Empire from that of West Europe in the period prior to the Greek Enlightenment? The dated manuscripts clearly show that it was the legacy of Byzantine science that made that difference. This science was alive and well amongst Greek scholars until the mid-eighteenth century. But was this culture so strange to the scholars of Western Europe in the seventeenth century, as is widely believed today?

Traces of the legacy of Byzantine science in the Greek world prior to the Enlightenment are by no means meager: they consist, on the basis of manuscripts copied during this period, of scientific knowledge formulated during Palaiologean times (1261-1453). This science was far from purely Greek. It represents a mixture of Ancient Greek, Persian (the school of Tabriz), Jewish (the Provence Karaites) and Western (e.g. the Adolphine tables) science. All this knowledge was familiar to European Renaissance scholars, largely from those Byzantine manuscripts which circulated during the fifteenth century, mostly in Italy. This knowledge, however, was not familiar only to Renaissance West-European scholars. As late as 1681, the Astronomer Royal John Flamsteed, an important figure of the Scientific Revolution, presented his students in his famous Gresham College lectures with data drawn from Byzantine astronomers⁷.

7. *The Gresham Lectures of John Flamsteed*, ed. by E. G. Forbes, Mansell 1975, pp. 216-219.

Furthermore, not one Jesuit astronomer of the second part of the seventeenth and the beginning of the eighteenth century was unacquainted with Riccioli's *Almagestum novum*, where the findings of the Byzantines are presented. Pereisc and Mersenne studied Byzantine music and sought Allatius for information⁸. Western European scholars of the early Enlightenment were, perhaps, much more familiar with Byzantine science than is currently thought. Furthermore, scientific contacts never ceased between the post-Byzantine Greek world and Europe. Even at the end of the 16th century, when these contacts were few and far between, Damascene Stoudites adopted the Jewish astronomical tables of the "six aisles" from a fifteenth-century Byzantine translation, and this work became known in Western Europe⁹. Later on, when the New Science appeared in the West, Greek scholars of the time before the Greek Enlightenment appear to have been much more familiar with the ideas of the Scientific Revolution than our quantitative analysis of the written data would suggest.

One cannot underestimate the role played in pre-Enlightenment Greek science by Chrysanthos Notaras. A nephew of the Patriarch Dositheos of Jerusalem, and later to become Patriarch himself, Notaras dominated Greek scholarly life for more than 30 years. The scientific manuscripts in the library of the Constantinople Annex of the Jerusalem Patriarchate were mostly collected by him. His book on Spherics and Geography was published in two editions, Paris (1716) and Venice (1718)¹⁰, and was widely quoted in the eighteenth century. Even outside the Greek-speaking world, his influence on the Slav-Greek-Latin Academy of Moscow was decisive. Later on, as Patriarch of Jerusalem, he had considerable influence over the whole of Greek intellectual and political life.

Let us now consider Chrysanthos' contacts with and his openness to the ideas of the Scientific Revolution.

Chrysanthos first studied in Constantinople under Sevastos Kymenites until about 1684. We know that until that time he had not come into any serious contact with the ideas of the new science.

8. Letter of Pereisc to Mersenne, dated 13-15 Oct. 1633, *Correspondance du P. Marin Mersenne*, vol. III, Paris 1969, pp. 497-505.

9. Παρέχτασις των ιθ' ἐτηρίδων Μιχαήλ του Χρυσσοκόκκου, Library of the Annex in Constantinople of the Patriarchate of Jerusalem, manuscript No 317.

10. It is possible that the "Paris" edition was printed in Venice.

Kymenites had himself studied in Italy but we do not have the slightest indication that he was taught anything about this science. Furthermore, the only pre-Enlightenment attempt of great European scholars to present the new science to the Ottoman Empire had failed. This had taken place in 1630, when the new French ambassador to the Sublime Porte planned to have the most famous scholars accompany him to Constantinople: Pierre Gassendi and René Descartes were to be in that “compagnie des savants”. Gassendi had even made preparations himself to sail in November of the same year but in the end financial reasons obliged the ambassador to bring only the Hebrew scholar François Galaup de Chasteil d’Aix and Father Theophile Minutti, of the order of the Minimes¹¹. After the failure of that attempt, Constantinople had to wait until the Enlightenment before any serious contact could be made with the ideas of the Scientific Revolution, and then only via Greek scholars who had studied in Western Europe. It is interesting to compare this situation with the remote empire of China, where a Jesuit mission of the seventeenth century had included scientists as famous as Adam Shall and Ferdinand Verbiest and had carried a library with the works of Galileo and Kepler, amongst others¹².

To return to Chrysanthos’ studies. Without any knowledge of the new science, he was sent on a political and educational mission to Moscow in 1697. Then, for the first time, he came into contact with the new scientific ideas, having obtained from Nicolas Spathar the Ferdinand Verbiest manuscript which he had brought from his mission to China. In this manuscript, the Jesuit priest and Chief Astronomer of the Emperor Khan-Hi presented the Tsar with the science of the Jesuits. What was Chrysanthos’ reaction? He copied the manuscript at once, fortunately for us, since the original is now lost¹³. Later on, Chrysanthos studied in Padua where he had few opportunities to learn the new science. Significantly, he furnished his library with a book by Cesare Cremonini,

11. See for ex. A. Baillet, *La vie de Monsieur Des-Cartes*, Paris 1691, pp. 228-229.

12. See the more recent bibliography on that subject in N. Golvers, *The Astronomia Europaea of Ferdinand Verbiest, S.J.*, Nettetal 1993.

13. E. Nicolaïdis, “Les Grecs en Russie et les Russes en Chine : le contexte de la copie par Chrysanthos des livres astronomiques perdus de F. Verbiest”, *Archives Internationales d’Histoire des Sciences*, fasc. 133, 1995, pp. 271-308.

an enemy of Galileo's ideas¹⁴. Then came his stay in Paris, with its Academy and the Observatory. The fruit of this journey was Chrysanthos' book on Spherics and Geography where he presents the new astronomical systems and —very important— the new mapping methods influenced by Jean Picard. Even though the new astronomical systems are presented with some reservation, this reservation was of a nature typical of his contemporaries, the Jesuits as well. We find here the same reaction as that of many eighteenth-century Greek clerical scholars: in spite of their hostility to the Jesuits, they often adopted Jesuit science and were always interested in Papal reaction to the new scientific ideas. The reason behind this is that these scholars probably felt that the Vatican was secure in its theological knowledge and that it was prepared to demonstrate or disprove the concordance of any new scientific idea with the Bible. Anyway, Chrysanthos Notaras was, at the turn of the eighteenth century, highly receptive to the new science. The engravings of Descartes's vortexes in the 1716 and 1718 editions were presented to the Greek world for the first time, and this under the aegis of the Patriarch of Jerusalem.

The other great scholar of the pre-Enlightenment period, Methodios Anthrakites, was not so open to the new science. It is perhaps too much to state, as some historians of science have done, that he mastered differential analysis since at that time very few mathematicians in Europe could master this field. Nevertheless, we have convincing proof that, due to his mathematical education in Italy, he was not a stranger to the new methods of analysis¹⁵. It would appear that, for purely ideological reasons, he chose in his monumental work *Cursus mathematicus*¹⁶ to present Greek students only with a classical education of a nature very close to that of the late Byzantine quadrivium. His work recalls that of the Byzantines of the Palaiologean period who remained faithful to the Greek tradition devoid of Persian or other foreign influences. The works

14. Ceasaris Cremonini *Explicatio I lib. Meteororum*, Library of the Annex in Constantinople of the Patriarchate of Jerusalem, manuscript No 210 and *Explicatio II et III lib. Meteororum*, manuscript No 211. See also the manuscript No 34, copied by Chrysanthos himself, dated March 27, 1699, when he was in Padua.

15. M. Lambrou, "Τα μη στοιχειώδη μαθηματικά κατά την εποχή της Τουρκοκρατίας", *Οι Μαθηματικές επιστήμες στην Τουρκοκρατία*, Athens 1991, pp. 9-27.

16. *Οδός μαθηματικής* ..., vol. I-III, Venice 1749.

of Theodore Metochites are a good example¹⁷. Anthrakites' treatise on the astrolabe, included in his mathematical manual, is the last in the history of European science to have drawn from the Greek treatises on the astrolabe based on that by Philopon¹⁸. Anthrakites, along with many other Greek scholars of the seventeenth and eighteenth century, was a partisan of Revival ideas on ancient Greek science. For the Greek scholars, science had been a Greek invention. Greek classical science was the only science that was valid, and the time had arrived to revive this knowledge amongst the descendants of the ancient Greeks¹⁹.

In fact, this way of thinking was shared by many Greek scientists of the Enlightenment. In the preface to his book, *Elements of Mathematics*, Nikephoros Theotokis took a similar position—but with a significant difference. According to him, science had indeed been born in Ancient Greece, but it was transmitted to the Europeans, who in turn enriched that knowledge. The modern Greeks need to revive science in their country, this time by taking back the knowledge newly enriched by the Europeans²⁰. Here we are confronted with the most significant difference between Anthrakites and Theotokis. In mathematics, the latter attempts a synthesis of ancient geometrical methods and new methods of analysis. His choice to present the mathematics of Gregoire de Saint Vincent is characteristic of his synthetic efforts. Gregoire had attempted to develop a mathematical method to solve problems similar to those solved by Descartes' analysis. This was largely based on classical geometrical methods enriched with the infinites. Theotokis' work *Elements of Mathematics* is a monument to this effort to synthesise ancient Greek mathematics with the infinites, but any such synthesis proved vain in the wake of the development of the tools of differential and integral analysis²¹.

17. For example the monumental work of Metochites, *Στοιχείωσις αστρονομική*, written in 1316 (see Anne Tihon, "L'astronomie byzantine (du Ve au XVe siècle)", *Byzantion* 51 (1981) 603-624).

18. A. Ph. Segonds, *Jean Philopon. Traité de l'astrolabe*, Paris 1981, pp. 85-86.

19. E. Nicolaïdis, "La tentative de renaissance des mathématiques anciennes dans le monde grec du XVIIIe siècle", *Études Balkaniques* 2 (1993) 61-72.

20. N. Theotokis, "Τοις αναγινώσκουσιν", in *Στοιχείων μαθηματικών ...*, Moscow 1798.

21. His method of measure by geometrical methods plus the infinites the volume included between the logarithmic curve and the axes, illustrates perfectly this effort (see

Whether partisans or enemies of the new science, the more important Greek scholars wrote and taught science during the pre-Enlightenment or the early Enlightenment period. Notaras, Anthrakites, Theotokis and Voulgaris shared many characteristics. Despite the fact that they were clergymen, three of them of very high rank, they were also men of science. They were university educated in science and mastered the scientific knowledge presented in their writings and teachings.

Some years ago, the present author in collaboration with Demetrius Dialektis attempted an analysis of the main characteristics of Greek scholars who helped to disseminate science in the Greek world between 1700 and the Greek Revolution, precisely when the Scientific Revolution was being transmitted there²². We attempted to discover information on all these scholars: their education (their studies, the languages they knew, the books they owned), their career, their family, their pupils, their work (scientific or otherwise), their relations with the Church, their engagement in politics, their place of birth etc. This work, published some eight years ago, has now been enriched with the results of the recent European project "Prometheus", to be presented next summer in Liège²³. Analysis of the information about these scholars and their work shows that they fall into three quite clearly differentiated groups categorised by their year of birth.

The first group consists of scholars born before 1750. These people studied at a time when the Enlightenment was not an important element in Greek intellectual life, given that we agree that the Greek Enlightenment begins in the second half of the eighteenth century and becomes a dominant trend after 1774.

A typical representative of this group would be a clergyman who, after having been initially educated in his homeland and eventually at one of the Greek Colleges of the Ottoman Empire, left to study at

Στοιχείων μαθηματικών... pp. 195-198).

22. E. Nicolaïdis, D. Dialektis, "L'influence des Lumières sur la formation scientifique grecque", *Revue d'Histoire des Sciences* XLV (1992) 491-499.

23. Symposium "la diffusion de la Révolution scientifique vers la périphérie européenne", XXth International Congress of History of Science, 21-22 July 1997. [Since then, a volume has been published: C. Lertora-Mendoza, E. Nicolaïdis, J. Vandersmissen (eds), *The Spread of the Scientific Revolution in the European Periphery, Latin America and East Asia*, ed. Brepols, Turnhout 2000, where this paper with slight changes is presented].

universities in Italy or perhaps even France. Our student takes courses in Philosophy, Philology, Mathematics and Physics, when the latter are taught separately from Philosophy. Our typical scholar is also highly versed in Theology.

After his studies, our scholar returns, mostly to continental Greece, the Aegean islands or Asia Minor, and takes a position in the clerical establishment of the Orthodox Church, and may teach at a Greek College or privately. Apart from Theology, he teaches Mathematics and Physics and sometimes Natural History. He writes more than three books on Theology, Philology, Philosophy, Mathematics or Physics.

His works on science are manuals of a high standard, written in an awkward archaic language. When he has the opportunity to publish a book on science, he sends the manuscript to Italy to be printed.

Both his teaching and his scientific research generally concern Mathematics, and Geometry in particular. One need only recall the exalted place of Geometry in the value system of the science of the Ancients.

Our paradigm scholar does not aim to present the new science to his pupils. He wants to educate them as fully as possible in classical Greek science, as enriched and formulated by mathematicians such as Tacquet or Saint Vincent. Their teaching is of a high quality; they do not popularise science, and, last but not least, they themselves had been university trained in the science they teach and write about.

The second group of scholars to appear in our analysis was born between 1750 and 1772, at an early stage of Greek Enlightenment. These scholars studied at a time when the Enlightenment was in full swing.

The typical representative of this generation of scholars is no longer a clergyman, but comes from a trading family or is a merchant himself. After a basic education in his homeland, the young student goes to a university in Central Europe (the Austrian empire or the German States), where he studies medicine and/or takes general courses such as geography. He may also learn languages. During his studies, he comes into contact with the ideas of the Scientific Revolution through books or lectures and the discussions and experiments that are very *à la mode* in intellectual circles of the time.

Following this education, our young scholar very often remains and

works in Western Europe, mainly in Greek communities, or he may go to the Trans-Danubian Principalities or to Russia, or even to the Ionian islands, which were not controlled by the Ottomans. He is often engaged in revolutionary movements, and will become merchant, doctor or teacher.

Parallel to these activities, our scholar writes some manual on science for Greek students, but also to address this knowledge to a relatively cultivated public. This strategy determines the profile of these manuals: books on Physics or Geography are the most common. They are written in a relatively simple language and their level is relatively low: description prevails over mathematical analysis. The new science is presented frequently here, but almost always in a purely descriptive form. These manuals are in keeping with the popularising scientific books that appear in Europe during the eighteenth century.

It was this generation of “scholars”, obviously, which introduced *en masse* the ideas of the Scientific Revolution to the Greek-speaking world. These ideas were introduced at that time in a descriptive and popularised form: it was the ideas of the Scientific Revolution that were being introduced rather than the actual science of that Revolution.

The next, and last, generation of “scholars” in our analysis was born after 1772, and was consisted by men who had grown up at a time when the Greek Enlightenment constituted a dominant intellectual current.

This group is the least homogenous one. Our analysis has included men who wrote books on science, even if at a popular level. Now, however, we find some writers who did not participate in the intellectual life of their time, but only wrote a single popularising book on scientific knowledge. If the scholars of this generation had anything in common, that was their eagerness to communicate some scientific knowledge to the Greek people in order to promote the general level of education. For most of them, promoting this knowledge was synonymous with promoting national independence. It would not, therefore, be an exaggeration to say that many of these scholars wrote books to present the knowledge of the Scientific Revolution to the Greeks for purely political reasons. Let us not forget that the period when these books were written and edited was that of the French and then the Greek Revolution.

That generation of “scholars” was represented by the Greek trading communities in West and Central Europe. Just as with the previous ge-

neration, merchants played an important role during this period as well.

The fact that this period saw the publication of books which popularised science in general, and the new scientific knowledge in particular, should not mask the fact that the second half of this period saw the appearance of scientific manuals which presented students in Greek colleges with knowledge of the Scientific Revolution in a non-descriptive manner. The *Algebra* by Demetrius Gobdelas²⁴, the *Philosophie chimique* by Fourcroy²⁵, and the *Elements of mathematics and physics* by Constantinos Koumas²⁶ constitute good introduction manuals for those who will continue studies at a university level.

Throughout the transitional period from the classical to the new science, Greek society differed from the countries at the centre of the Scientific Revolution because of the absence of universities. We have catalogued 44 Greek Colleges with an organised educational system that functioned during the seventeenth and eighteenth century, but none of these can compare with the Western European universities of the times. The absence of an organized university system and, more importantly, the absence of Academies of Science during the seventeenth and eighteenth century deprived the Greek world of an organized scientific milieu to act as a recipient of the new scientific ideas. The dissemination of these ideas was, therefore, the result of personal initiatives and any reaction to it could only come from the organized Church. The fact that many of the scholars who transmitted the new science were high-ranking clergymen meant that any reaction from the Church would provoke internal debate, and instances of this kind are known in the eighteenth and early nineteenth centuries. The delayed reaction to the Copernican system made by some clerical circles after the French Revolution constituted an anachronistic attempt to isolate the Greeks from the Scientific Revolution. It included a book by Sergios Makraios in defence of Ptolemy²⁷ and the publication of the Boulgaris manuscript defending

24. *Στοιχεία αλγέβρας* ..., Halle 1806.

25. Th. Heliades, *Χημική φιλοσοφία* ..., Vienne 1802.

26. *Σειράς στοιχειώδους των μαθηματικών και φυσικών πραγματειών* ..., Vienna 1807.

27. *Τρόπαιον εκ της Ελλαδικής πανοπλίας κατά των οπαδών του Κοπερνίκου* ..., Vienna 1797.

Tycho Brahe²⁸. These attempts were hardly echoed —it was too late, in fact, for any reaction of such kind.

Ironically, the absence of universities and Academies led to closer contacts between Greek scholars and their counterparts in Western Europe, since the former were obliged to study at universities at the centre of the Scientific Revolution. While Greeks may not have participated in the formulation of science during the Greek Enlightenment, they were nevertheless in evidence: in Italy, France or Central Europe, they were in contact with the protagonists of that Revolution, they read their books and even translated them. Indeed, the translation of Lalande's *Traité d'astronomie* was made with annotations by the author himself.

Were we directly to answer our question of whether the Greek Enlightenment was a vehicle for the dissemination of the ideas of the Scientific Revolution, we could answer "yes, but...". Yes, because the fundamental knowledge of that science spread to the Greek world during the Greek Enlightenment through the teaching of Greek scholars who had studied in West Europe and through Greek books on science. This dissemination had been well prepared during the pre-Enlightenment period in the Greek-speaking world, from the end of the seventeenth to the mid-eighteenth century, by scholars of strong mathematical training, some of whom quite openly presented the main ideas of the scientific revolution. But this science was also spread during the Greek Enlightenment for political reasons by scholars who had not studied in the field of mathematical sciences. During this period, then, the new scientific ideas that spread to the Greek world were more of a general descriptive nature rather than involved with the new mathematisation of nature. The inclusion of these new scientific ideas in the education system was made at the end of the Greek Enlightenment, just before the Greek revolution. Only after that revolution did the Greeks begin to participate in the creation of European science thanks to the foundation of appropriate institutions such as the University of Athens and the Athens Observatory, where Julius Schmidt formulated his Lunar map. That, however, is another story, involving different intellectual currents of German romanticism in science and the French ideal of the engineer-mathematician.

28. *Περί συστήματος του Παντός...*, Vienna 1805.