# ORIGINS OF THE HISTORIOGRAPHY OF MODERN GREEK SCIENCE

MANOLIS PATINIOTIS

ABSTRACT

The purpose of the paper is to examine how Greek historians account for the presence of modern scientific ideas in the intellectual environment of eighteenth-century Greek-speaking society. It will also discuss the function of the history of modern Greek science in the context of Greek national historiography. As will be shown, the history of modern Greek science spent most of its life under the shadow of the history of ideas. Despite its seemingly secondary role, however, it occupied a distinctive place within national historiography because it formed the ground upon which different perceptions of the country's European identity converged. In this respect, one of the main goals of this paper is to outline the particular ideological presumptions, which shaped the historiography of modern Greek science under different historical circumstances. At the end an attempt will be made to articulate a viewpoint more in tandem with the recent methodological developments in the history of science.

*Keywords*: Historiography of science, Positivist historiography, National identity.

## INTRODUCTORY REMARKS

In the eighteenth century, the Greek Orthodox populations of the Balkans were part of the Ottoman Empire and lacked the institutional structures of a national state. They even lacked the geographical continuity that would form the basis for a uniform organization of the various social activities. The Greek society consisted of a network of sites where Greek populations devel-

oped various economic and political activities.[1] Besides Balkans, the Greek communities were dispersed along the main commercial routes of Eastern Europe, and within the most important cities of the Northern Italian peninsula, Hapsburg Empire, and the German states.[2] Without going into details concerning the question of who was entitled to be called "Greek", one can single out two strong unifying elements which differentiated these populations from others and assigned them a certain degree of integrity: The Christian Orthodox faith and the Greek-speaking education. The former served to separate these populations from the predominantly Islamic context or, most importantly, from the Catholics, with whom they came into contact during their travels and migration.The latter offered a common linguistic and cultural reference unifying a great variety of localities, but also promoted the incorporation of many Hellenized inhabitants of the Balkans into the commercial networks dominated at the time by Greek-speaking merchants.[3] Both were under the jurisdiction of the same authority, the Ecumenical Patriarchate of Constantinople; but both were also coloured by the particularities of the various local communities. Education and Church were the two main institutions that hosted all kinds of ferments, negotiations and collective pursuits concerning the emergent society's political and intellectual identity. This was also the context wherein the reception of the new natural philosophy took place, throughout the eighteenth century.

---

[1] ΓΙΩΡΓΟΣ ΤΟΛΙΑΣ, "Η Συγκρότηση του Ελληνικού Χώρου 1770-1821", in *Ιστορία του Νέου Ελληνισμού, 1770-2000*, edited by Β. Παναγιωτόπουλος, 10 vol., vol. 1 (Athens: Ελληνικά Γράμματα, 2003), pp. 59-74; ΙΔ., "Ιερός, Κοσμικός και Εθνικός χώρος στην Ελληνική Γεωγραφική Φιλοτοφία κατά τον 18° αιώνα", in *Η Επιστημονική Σκέψη στον Ελληνικό Χώρο, 18ος-19ος αι.* (Athens: Τροχαλία, 1998), pp. 147-172.

[2] ΟΛΓΑ ΚΑΤΣΙΑΡΔΗ-HERING, "Η Ελληνική Διασπορά", in *Ιστορία του Νέου Ελληνισού* (cit. note 1), pp. 87-112. See, also: ΑΠΟΣΤΟΛΟΣ ΒΑΚΑΛΟΠΟΥΛΟΣ, "Ο Ελληνισμός της Διασποράς", in *Ιστορία του Ελληνικού 'Εθνους*, 16 vols., vol. 11: *Ο Ελληνισμός υπό ξένη κυριαρχία (περίοδος 1669-1821). Τουρκοκρατία – Λατινοκρατία* (Athens: Εκδοτική Αθηνών, 1975), pp. 231-243; ΙΩΑΝΝΗΣ Κ. ΧΑΣΙΩΤΗΣ, *Επισκόπηση της Ιστορίας της Νεοελληνικής Διασποράς* (Thessaloniki: Bávias 1993); TRAIAN STOIANOVICH, "The Conquering Balkan Orthodox Merchant", *Journal of Economic History*, 1960, *20*: 234-313.

[3] ΚΑΤΣΙΑΡΔΗ-HERING, "Εκπαίδευση στη Διασπορά. Προς μια παιδεία ελληνική ή προς 'θεραπεία' της πολυγλωσσίας", in *Νεοελληνική Παιδεία και Κοινωνία. Πρακτικά Διεθνούς Συνεδρίου αφιερωμένου στη μνήμη του Κ.Θ. Δημαρά* (Athens: Όμιλος μελέτης του ελληνικού Διαφωτισμού, 1995), pp. 153-177. VICTOR ROUDOMETOF, "From *Rum Millet* to Greek Nation: Enlightenment, Secularization, and National Identity in Ottoman Balkan Society, 1453-1821", *Journal of Modern Greek Studies*, 1998, *16*: 11-48. There is an extensive secondary bibliography discussing the formation of the Greek national identity both before and after the Greek war of independence. The proceedings of the IV International Congress of History: *Historiography of Modern and Contemporary Greece, 1832-2002*, edited by Paschalis M. Kitromilides and Triantaphylos E. Sclavenitis, 2 voll. (Athens: Κέντρο Νεοελληνικών Ερευνών Εθνικού Ιδρύματος Ερευνών, 2004) is a very rich collection, in this respect. See especially the sections "The Construction of National Historiography" in vol. 1 and "History of the Institutions and of the Greek State" in vol. 2.

The second half of the eighteenth and the first two decades of the nineteenth century witnessed the publication of many scientific and philosophical books aiming to cross-fertilize Greek intellectual life with the achievements of the European Enlightenment. The protagonists of this initiative were almost exclusively teachers. Their books were meant to serve as textbooks for the schools of the period.[4] The figure of the teacher held a central position in Greek-speaking education throughout the eighteenth century. Although a common curriculum tended to prevail, especially in higher education, the master of every local school remained the ultimate authority over curriculum structure and the textbooks to be used in each thematic area. The master was personally responsible for his students' philosophical instruction, which also included mathematics and natural philosophy. Almost every major scholar of the time had been a schoolmaster and many of them had published more than one scientific or philosophical textbook.[5]

These scholars belonged to a transitional generation. Intellectual life was then dominated by the neo-Aristotelian tradition established in the early seventeenth century by Theophilos Korydaleus (1563/74-1646).[6] From the start of the eighteenth century, however, Greek-speaking scholars started travelling throughout Europe. Padua ceased to be the almost exclusive university where they would go to study. They also began travelling to the German states, the Low Countries, Russia, the Hapsburg Empire and to a much lesser extent to France and England. They were thus acquainted with a multitude of intellectual traditions and schools, related mainly to the recent developments of the European Enlightenment and to its philosophical and ideological context. When these travellers returned

---

[4] ΓΙΑΝΝΗΣ ΚΑΡΑΣ, *Οι Θετικές-Φυσικές Επιστήμες στον Ελληνικό Χώρο*, (Athens: Gutenberg, 1977).

[5] DIMITRIS DIALETIS, KOSTAS GAVROGLU and MANOLIS PATINIOTIS, "The Sciences in the Greek-speaking Regions During the 17th and 18th Centuries: The Process of Appropriation and the Dynamics of Reception and Resistance", *Archimedes*, 1999, *2*: 41-71. For an exhaustive catalogue of the extant printed and manuscript works compiled by the scholars of the time see ΚΑΡΑΣ, *Οι Επιστήμες στην Τουρκοκρατία. Χειρόγραφα και έντυπα*, 3 voll. (Athens: Βιββλιοπωλείον της "Εστίας", 1992-1994). See also the digital library *Hellinomnimon*, which contains all the philosophical and scientific books written in Greek and printed between 1600 and ca. 1821. *Hellinomnimon* was created by the Department of Philosophy and History of Science, Athens University and can be found at www.lib.uoa.gr/hellinonmimon/. For the function of the philosophical and scientific textbooks in the Greek intellectual life of the period see PATINIOTIS, "Textbooks at the Crossroads: Scientific and Philosophical Textbooks in 18th century Greek Education", *Science and Education*, 2006, *15*: 801-822.

[6] CLÉOBULE TSOURKAS, *Les débuts de l'enseignement philosophique et la libre pensée dans les Balkans. La vie et l'oeuvre de Théophile Corydalée (1570-1646)* (Thessaloniki, 1967, 2nd edition); ΚΩΝΣΤΑΝΤΙΝΟΣ Θ. ΠΕΤΣΙΟΣ, *Η περί φύσεως συζήτηση στη νεοελληνική σκέψη. Όψεις της φιλοσοφικής διερεύνησης από τον 15ο ως τον 19ο αιώνα* (Ioannina, 2002), pp. 137-176.

home after from four to ten years in European educational centres, they sought social recognition matching their intellectual qualifications. The quest for modernisation of certain local societies provided the ground on which their social aspirations could flourish. These scholars perceived themselves and were perceived by others as agents of a new spirit in Greek intellectual life. Far from sustaining a homogeneous programme of modernisation and far from having gained local authorities' general consent, they were considered the agents upon whom the most dynamic social groups counted for shaping their collective identity. But the constituents of this identity were still in question. As a result, the Greek-speaking scholars of the time found themselves at the intersection of multiple cultural traditions and social interests. The textbooks they wrote and the philosophical discourses they elaborated exactly reflected this ambiguous situation.[7]

How do Greek historians account for this situation? How do they assess the presence of modern scientific ideas in the intellectual environment of the eighteenth-century Greek-speaking society? And how do they perceive the function of the history of modern Greek science itself in the context of the Greek national historiography? The purpose of this paper is to try to articulate answers to these questions by examining the course of the relevant historiography from its first appearance in the late nineteenth century to the recent years.[8] As will be shown, the history of modern Greek science spent most of its life under the shadow of the history of ideas. Despite its seemingly secondary role, however, it occupied a distinctive place within national historiography because it formed the ground upon which different perceptions of the country's European identity converged. In this respect, one of the main goals of this paper is to outline the particular ideological presumptions, which shaped the historiography of modern Greek science under different historical circumstances. At the end there will be an attempt to articulate a viewpoint more in tandem with the recent methodological developments in history of science.

---

[7] For the intellectual itineraries and the professional agenda of eighteenth-century scholars see PATINIOTIS, "Scientific Travels of the Greek Scholars in the 18th Century", in *Travels of Learning. A Geography of Science in Europe*, edited by A. Simões, A. Carneiro, M.P. Diogo (Dordrecht: Kluwer Academic Publishers, 2003), pp. 49-77. Concerning the Greek-speaking scholars' preference to study at the University of Padua, see *ibid.*, pp. 58-60 as well as GEORGE N. VLAHAKIS, "An outline of the Introduction of Classical Physics in Greece. The Role of the Italian Universities and Publications", *History of Universities*, 1995-1996, *XIV*: 157-180.

[8] For another similar attempt, see ΕΥΘΥΜΙΟΣ ΝΙΚΟΛΑΪΔΗΣ, "Ιστοριογραφία των Επιστημών", in *Historiography of Modern and Contemporary Greece* (cit. note 3), vol. 1, pp. 527-538. The author mostly focuses on the social conditions, which determined the emergence of history of science in the Greek academic context. Special emphasis is placed on Stephanides' and Karas' projects (see below).

## DEMARCATIONS

In 1953, E. Papanoutsos, a Greek philosopher and historian of philosophy, published a two-volume anthology containing texts written by Greek scholars in the period from the fall of Constantinople through the mid-twentieth century. In order to account for his undertaking, in the preface of the first volume he made an interesting programmatic remark: Contemporary intellectual life, he claimed, focuses almost exclusively on the attainments of ancient philosophical thought and tends to underestimate the scientific and philosophical contribution of the recent centuries. Greeks suffer from a kind of farsightedness, which allows for a clear view of the distant classical era, but blurs the closer intellectual attainments, as if they had never existed. As a result, when Hellenism "resurrected" from the long period of the "Ottoman slavery", all intellectual and political authorities overlooked the longstanding Byzantine and early modern Greek philosophical tradition and turned for inspiration and instruction to the "Ancients" and to the "Europeans". By claiming that Europe built its own science and philosophy on grounds prepared by their ancestors, Greeks strove to reassure their integration into the European family.[9]

We will set aside the widespread conviction, expressed here by Papanoutsos, about the continuity of "Hellenism" from ancient times through the Byzantine era to the present because it falls outside the scope of this paper; and we will keep the last sentence for further elaboration later on. For the time being it is important to single out Papanoutsos' attempt to define a certain historiographic framework for the study of modern Greek intellectual production. Although he was not the first who called for such a framework as we shall see below, he was the first who explicitly declared the need for the adoption of a view on modern Greek science and philosophy, which would not render them *a priori* subservient to either the classical philosophical tradition or the various trends of modern European philosophy.

Thirty five years after the publication of Papanoutsos' anthology, P. Kondylis, another philosopher and historian of philosophy, published his work on the "Neohellenic Enlightenment", a book that sparked much controversy. Kondylis placed his undertaking on the antipodes of Papanoutsos' suggestion.

---

[9] ΕΥΑΓΓΕΛΟΣ ΠΑΠΑΝΟΥΤΣΟΣ (ed.), *Νεοελληνική Φιλοσοφία*, 2 voll., vol. 1 (Athens: Αετός, Βασική Βιββλιοθήκη, 1953), pp. 7-8.

The Neohellenic Enlightenment did not produce original philosophical ideas. That is to say, the trends that were formulated during the second half of the eighteenth and the first third of the nineteenth centuries [...] and were different or contrary to the prevailing theological ideology had borrowed their ideas from the corresponding European trends. But even this borrowing was infertile from a purely theoretical point of view, mainly because Greek intellectual needs were rather scant and could be fulfilled [...] by second – or third – class works. And such were most of the books that were translated and read. The same goes for the profile of the native philosophical output of the Neohellenic Enlightenment, which was of a similar nature: compilations and multifaceted copies, unworthy of philosophical consideration. There were only a few eminences that became visible just because the surroundings were even lower.[10]

Not all Greek historians share Kondylis' dismissive tone, of course. But even fewer endorse Papanoutsos' programmatic declarations.[11] The point is that, for several decades, these two opposite approaches shaped the context wherein the historiography of modern Greek science articulated its discourse.

## THE ROMANTIC YEARS

The history of ideas of the Greek-speaking populations of the Ottoman Empire was established by a group of historians who produced their works during the last decades of the nineteenth century. Konstantinos Sathas (1842-1914), Matthaeos Paranikas (1832-1897), and Manouil Gedeon (1851-1943) belonged to a historiographic tradition that researched the intellectual activities of the "enslaved Greeks" from the fall of Constantinople to the establishment of the Greek national state. They concentrated on the publication of primary sources, the compilation of biographies and the listing of schools that flourished in the broader Greek intellectual space from 1453 to 1821. The contiguity to the historical period they studied allowed them to take advantage of a rich historical material that had remained unexploited by their time. Apparently, from a contemporary point of view their historiographic approach was rather simplistic and based on a

---

[10] ΠΑΝΑΓΙΩΤΗΣ ΚΟΝΔΥΛΗΣ, *Ο Νεοελληνικός Διαφωτισμός. Οι φιλοσοφικές ιδέες* (Athens: Θεμέλιο, 1988), p. 10, my translation.

[11] A follower of Papanoutsos was GEORGE P. HENDERSON, who perceived his work *The Revival of Greek Thought 1620-1830* (Albany, NY: State University of New York Press, 1970) as an implementation of Papanoutsos' approach.

cumulative pattern. On the other hand, however, because of their proximity to the primary material (documents, people and narratives) their works are invaluable sources of firsthand historical information. The history of modern scientific ideas appears for the first time in the works of these historians as part of the history of education.[12]

The careers of Sathas, Paranikas, and Gedeon display a common feature, which according to all indications substantially affected their attitude towards their historical resources: All three of them spent the greatest part of their lives beyond the borders of the Greek state. Indeed, two of them, Paranikas and Gedeon, spent the greatest part of their productive lives in Istanbul (Constantinople), as members of a community, which defined itself not on the basis of a state ideology, but on the basis of a highly idealized echo of the Byzantine ecumenism.[13] Thus, although all of them supplied Greek historiography with material, which could be used for the much needed construction of a continuous national past, their methodological choices transcended the borders of the new and insecure Greek national state.[14] They did not focus so much on the notion of national state as on the concept of nation itself (γένος), a collective body, which existed as a distinctive cultural entity irrespectively of the constraints imposed on it under various historical circumstances and irrespectively of whether the members of this entity were aware of their ties or not.

The condition that allowed the members of this imagined community to maintain its integrity was a tangible historical reality: Greek education. Although the official Greek historiography, evidently under the influence of romantic nationalism, focused mostly on the *longing* for education during the Ottoman rule,[15] the three historians brought abundant evidence about the thriving of Greek education, especially during the seventeenth and eighteenth centuries. According to their view, the education of the

---

[12] ΚΩΝΣΤΑΝΤΙΝΟΣ Ν. ΣΑΘΑΣ, *Νεοελληνική Φιλολογία. Βιογραφίαι των εν τοις γράμμασι διαλαμψάντων Ελλήνων (1453-1821)* (Athens, 1868); ΜΑΤΘΑΙΟΣ ΠΑΡΑΝΙΚΑΣ, *Σχεδίασμα περί της εν τω ελληνικώ έθνει καταστάσεως των γραμμάτων από της αλώσεως της Κωνσταντινουπόλεως μέχρι της ενεστώσης εκαντοετηρίδος* (Constantinople, 1867); ΜΑΝΟΥΗΛ Ι. ΓΕΔΕΩΝ, *Η Πνευματική Κίνησις του Γένους κατά τον ΙΗ' και ΙΘ' αιώνα*, edited by Α. Αγγέλου and Φ. Ηλιού (Athens: Ερμής, 1976).

[13] Sathas spent a great part of his productive life traveling around Europe in search of Greek manuscripts. He spent significant time in Italy and France.

[14] For a comprehensive overview of the intellectual atmosphere of the time see ΑΛΕΞΗΣ ΠΟΛΙΤΗΣ, *Ρομαντικά Χρόνια. Ιδεολογίες και Νοοτροπίες στην Ελλάδα 1830-1880* (Athens: Ε.Μ.Ν.Ε.-Μνήμων, 1993); ΈΛΛΗ ΣΚΟΠΕΤΕΑ, *Το "Πρότυπο Βασίλειο" και η Μεγάλη Ιδέα. Όψεις του Εθνικού Προβλήματος στην Ελλάδα (1830-1880)* (Athens: Πολύτυπο, 1988).

[15] Hence the "secret school" myth, according to which the young Greeks studied secretly at night in order to avoid the consequences of the general prohibition of all educational activities by the Ottoman authorities. ΆΛΚΗΣ ΑΓΓΕΛΟΥ, *Το Κρυφό Σχολειό. Χρονικό ενός Μύθου* (Athens: Εστία, 1997).

Greeks was decisive in maintaining the memory of the nation's origins and thus the notion of community. The enhancement of education in the eighteenth century indicates the awakening of the nation's self-consciousness and its desire to secure its cultural and political autonomy. At the same time, the enhancement of education was considered a direct result of the activation of its agents' curiosity and intellectual reflexes: The passive reproduction of classical literature corresponded to a period of intellectual and cultural stagnation, whereas the activation of the dialogue with modern European philosophy brought about a new spirit in Greek intellectual life. It was indeed important that the scientific and philosophical attainments which attracted the attention of the Greek-speaking scholars were mostly considered distant products of the familiar ancient Greek thought; but, according to these historians, it was even more important that these scholars displayed an explicit desire to follow the new developments of science and philosophy in Europe. In this respect, science became a landmark: The scientific thinking of the eighteenth-century Greek-speaking scholars bears witness to their intellectual dynamism and to the cultural maturity of the society they represented. And although this scientific thinking remained confined in the context of education, the fact itself that these people had the ability to understand and endorse a great deal of the new scientific ideas suggested the reactivation of the ancient heritage and the beginning of the nation's intellectual reconstruction.

## The Neohellenic Enlightenment

The appearance of the next generation of historians of ideas was marked by the publication, in 1945, of a paper entitled: "French Revolution and the Greek Enlightenment around 1800".[16] Its author, Constantinos Dimaras (1904-1992), was probably the most important Greek historian of ideas of the twentieth century. In this article, the term "Greek Enlightenment" was introduced for the first time and formed the cornerstone of eighteenth-century studies ever since. Three years later the same author published his seminal work *History of Neohellenic Literature.* In this work he suggested a periodization of the history of ideas from 1600 to 1821 that is still in use. He divided the whole period into three phases. The first phase started around 1600 with the national and educational pol-

[16] ΚΩΝΣΤΑΝΤΙΝΟΣ Θ. ΔΗΜΑΡΑΣ, "Η Γαλλική Επανάσταση και ο Ελληνικός Διαφωτισμός γύρω στα 1800", *Δημοκρατικά Χρονικά*, 1945, *1/6*, 11-12.

icy of Patriarch Kyrillos Loukaris and ended in 1669 with the completion of the Ottoman conquest over the Greek-speaking regions of the Balkans. In the area of philosophy this period was characterized by the revival of an interest in the study of nature, and the synthesis of neo-Aristotelian philosophy with Orthodox theology. The term "religious humanism" used by Dimaras to denominate this phase bore connotations of a glorious Byzantine past ("Byzantine humanism"). The second phase started in 1670 and ended one century later (1774) with a treaty between Russia and the Ottoman Empire that broadened and secured the economic privileges of the Greek-speaking populations. The period is known as the "Century of the Phanariots", a name that reflects the increasing political impact of the social group of the learned noblemen of Constantinople. Phanariots, after having ascended the various lay offices of the Ecumenical Patriarchate, were promoted in the political hierarchy of the Ottoman Empire. According to Dimaras, their political program was inspired by the model of Enlightened Despotism. At the same time, they promoted an intellectual life receptive to the European – especially French – culture, so they became the first agents of modernization of the emergent Greek society. The last phase started in 1775 and ended with the Greek war of independence, in 1821. According to Dimaras, this was the period of the "Greek Enlightenment" *par excellence*, characterized by the introduction of the European Enlightenment's philosophical and scientific attainments. Dimaras claimed that the "progressive scholars" of the time sought a rational foundation for the social life of the Greek populations of the Ottoman Empire and worked to establish the ideas that would lead to the great national uprising. Throughout this period, the acquaintance with the scientific ideas played a significant role in eradicating superstitions and in promoting a firm belief in reason.[17]

Constantinos Dimaras inherited and further developed the basic issues of the historiographic tradition initiated by the late nineteenth-century historians. A significant difference primarily lies in the way he approached the original material. The main concern of the earlier historians was to acquaint their audiences with the writings of the eighteenth-century Greek-speaking scholars and to investigate into the various aspects of Greek education under the Ottoman rule. Dimaras turned into a more

---

[17] ΔΗΜΑΡΑΣ, *Ιστορία της Νεοελληνικής Λογοτεχνίας. Από τις πρώτες ρίζες ως τον Σολωμό* (Athens: Ικαρος, 1985, 7th edition); ID., *Νεοελληνικός Διαφωτισμός* (Athens: Ερμής, 1993, 6th edition); see especially the papers "Ο Ελληνικός Διαφωτισμός" and "Το Σχήμα του Διαφωτισμού", *ibid.*, pp. 1-22 and 23-119 respectively.

profound inquiry of the intellectual processes that would allow him to reconstruct the shaping of the modern Greek identity under various historical circumstances. His periodization reflects a more political reading of the history of ideas: During the first period (1600-1669), the Ecumenical Patriarchate was the main agent of political and social authority. In the second period the intellectual life was attuned to the political pursuits of the Phanariots. The third period, finally (1775-1821), was characterized by the activity of a new generation of scholars who expressed in the intellectual sphere the social expectations of the Greek-speaking bourgeois groups of South-Western Balkans (mostly Epirus and Macedonia). The main thesis, however, that permeates this reading was unalterably inherited from the previous generation of scholars: The enhancement of Greek intellectual life and the introduction of the new scientific and philosophical ideas contributed decisively to the enlightenment of the nation and to its liberation from the Ottoman rule.

Dimaras was the architect of a historiographic approach which occupies a prominent position in contemporary history of ideas. Many historians organized their accounts according to this approach, although they adapted it to their specific methodological preferences. Some placed emphasis on the introduction of new political ideas rather than on the change of philosophical views.[18] Others departed from Dimaras' insistence on the importance of the Phanariots and studied the intellectual change as a result of the broader restratification of the emergent Greek society.[19] The con-

---

[18] ΠΑΣΧΑΛΗΣ Μ. ΚΙΤΡΟΜΗΛΙΔΗΣ, *Νεοελληνικός Διαφωτισμός* (Athens: Μορφωτικό Ίδρυμα Εθνικής Τραπέζης, 1996). Kitromilides has published a number of works focusing on the process of assimilation of modern political ideas by the eighteenth-century Greek-speaking scholars. He pays special attention to the reactions these ideas triggered and to those features of the receiving environment, which affected both the original choices of the scholars and the ways they eventually adjusted and used the European political thought. In this respect, the investigation of the role the various translations and adaptations played in the process of social change in the local context is much more important for Kitromilides than tracing their origins and examining their faithfulness (see below for further bibliography).

[19] ΦΙΛΙΠΠΟΣ ΗΛΙΟΥ, *Κοινωνικοί Αγώνες και Διαφωτισμός. Η Περίπτωση της Σμύρνης (1819)* (Athens: Ε.Μ.Ν.Ε.-Μνήμων, 1986); ΔΗΜΗΤΡΗΣ Γ. ΑΠΟΣΤΟΛΟΠΟΥΛΟΣ, *Η Εμφάνιση της Σχολής του Φυσικού Δικαίου στην "Τουρκοκρατούμενη" Ελληνική Κοινωνία. Η Ανάγκη μιας Νέας Ιδεολογίας* (Athens, 1980); ID., *Η Εμφάνιση της Σχολής του Φυσικού Δικαίου στην "Τουρκοκρατούμενη" Ελληνική Κοινωνία. Η Πρώτη Μετακένωση* (Athens, 1983). It should be noted that, as the present paper is devoted to the historiography of Greek science, an attempt will be made to keep as much as possible to the narrow path of the respective bibliography. As a result, important works from the broader area of the history of ideas, which are not immediately pertinent to the theme of this paper will not be discussed here. Besides the above ones, such works are: ΗΛΙΟΥ, "Τύφλωσον Κύριε τον Λαόν σου. Οι προεπαναστατικές κρίσεις και ο Νικόλαος Πίκκολος", *Ο Ερανιστής*, 1974, *11*: 580-626; STEPHEN K. BATALDEN, *Catherine II's Greek Prelate. Eugenios Voulgaris in Russia, 1771-1806* (New York: Columbia University Press, 1982); ΝΙΚΟΣ ΨΗΜΜΕΝΟΣ (ed.), *Η Ελληνική Φιλοσοφία από το*

cept of "Neohellenic Enlightenment", as denoting the period during which the new scientific, philosophical and political ideas were introduced into the Greek intellectual life, retained its central position in all these historiographic undertakings. Most historians of ideas take the developments in the European philosophical and political thought as the baseline of their respective narratives and assess the changes in the Greek context on the basis of these developments.[20] Contrary to the previous generation of historians, who mostly aimed at bringing to light testimonies that documented the survival of the Greek nation, the historians who follow Dimaras' tradition primarily focus on the processes through which the Greek nation acquired its European identity. Because, as Dimaras himself eloquently noted,

> Europe is quite something. No matter how much we extend our consciousness in order for our affection and responsibility to include the human presence everywhere in the world; Europe is still a reality, which has not yet exhausted its content and whose historical destiny keeps occupying our minds. *There is indeed something which is a European people.*[21]

The point, then, is to show how modern Greeks became part of this people.

In order to establish the links of Greek intellectual life with the European Enlightenment, Dimaras based his account on two methodological

---

*1453 ως το 1821*, 2 voll., Vol. 1, *Η κυριαρχία του Αριστοτελισμού* (Athens: Γνώση, 1988), Vol. 2, *Η επικράτηση της νεωτερικής φιλοσοφίας* (Athens: Γνώση, 1989); KITROMILIDES, *The Enlightenment as Social Criticism. Iosipos Moisiodax and Greek Culture in the Eighteenth Century* (Princeton: Princeton University Press, 1992); ID., *Enlightenment, Nationalism, Orthodoxy. Studies in the Culture and Political Thought of Southeastern Europe* (Aldershot & London: Variorum, 1994); ΡΩΞΑΝΗ ΑΡΓΥΡΟΠΟΥΛΟΥ, *Η φιλοσοφική σκέψη στην Ελλάδα από το 1828 ως το 1922*, 2 voll. (Athens: Γνώση, 1995, 1998).

[20] A significant departure from this rule was the late Alkis Angelou, who used to place emphasis on the anthropological dimension of historical events. ΑΓΓΕΛΟΥ, *Των φώτων* (Athens: Ερμής, 1988); ID. (ed.), *Ιωσήπου του Μοισιόδακος, Απολογία* (Athens: Ερμής, 1992); ID., *Των Φώτων Β΄. Όψεις του Νεοελληνικού Διαφωτισμού* (Athens: Μορφωτικό Ίδρυμα Εθνικής Τραπέζης, 1999). The Greek eighteenth century, as it emerges from Angelou's works, is a fresco consisting of human portraits. Angelou's main attempt concentrated on outlining the individual and collective features of the scholars who served as carriers of the new philosophical, scientific and political ideas. Through the philological study of their texts and the historical reconstruction of their social networks he persistently tried to bring to light the motives which governed their choices and the influences which shaped their attitudes towards modernity. Although Angelou's work remained rather distant from history of science, it bears a certain importance to it as a guide to the emergence of a new type of scholar who, aiming at the redefinition of his social role, got involved with the new natural philosophy and the reshaping of the local intellectual life. Cf. ΑΓΓΕΛΟΥ, "Τα κίνητρα", *Ο Ερανιστής*, 1999, *22*: 158-171.

[21] ΔΗΜΑΡΑΣ, "Περιηγήσεις στον Ελληνικό Χώρο", *Κ*, 2006, *11*: 5-20, p. 6 (translation and emphasis are mine); see also *ibid.*, p. 9.

premises: A relationship of *externality* between the Greek and the European thought, and the existence of *progressive and conservative* agents, whose antagonism defined the physiognomy of Greek intellectual life in the successive stages of its development.

Dimaras retained the idea of his predecessors that it was the gradual enlightenment of the Greek-speaking populations of the Balkans that led them to the great national uprising. The intellectual activity of the eighteenth century and especially the "Greek Enlightenment" comprised the culmination of this process. This enlightenment, however, came *from outside.* The attainments of European political thought and philosophy were introduced into the Greek intellectual milieu thanks to the works of open-minded scholars, who comprehended the dynamism of the new trends and their relevance to the expectations of the "enslaved nation". The grafting of the Western ideals of Reason and Science onto traditional thought undermined the predominance of "Religious Humanism" and brought forth new perspectives for the emergent Greek society. In this sense, Dimaras' approach refers to two distinctive worlds: Europe represents the progress attained during the Renaissance and the Enlightenment, whereas Greek society represents the intellectual underdevelopment due to the constraints imposed by the Ottoman rule and the conservatism of the Ecumenical Patriarchate. The revival of educational and political activities of Greek society was a result of transplanting the fundamental values of the Western Enlightenment in the Greek context. The fact, though, that the Greek intellectual life had not gone through a real Renaissance before receiving the lights of modern Europe was held responsible for the distortions these values underwent during their adaptation to the particular conditions and for the «halt of the Enlightenment» in the early nineteenth century.[22]

Complementary to this relation of externality is the distinction between progress and conservatism. Dimaras defines the role of particular scholars as progressive or conservative, the former being receptive to the attainments of European thought while the latter upholding the religious policy and antiquity-oriented scholarship. Within this context, sciences played a significant role, since they represented the indisputably progressive trend of each period. Thus, during the first period (1600-1669) Patriarch Kyrillos Loukaris and the philosopher Theophilos Korydaleus held a progressive line that advanced the unprejudiced inquiry into the natural world as com-

---

[22] ΔΗΜΑΡΑΣ, "Η ανάσχεση του Διαφωτισμού και ο Κωνσταντίνος Παπαρρηγόπουλος", in ID., *Νεοελληνικός Διαφωτισμός* (cit. note 17), pp. 391-410.

pared to the religious tradition, whose representatives insisted on the exclusively theological interpretation of nature. During the second period the secular and cosmopolitan orientation of the Phanariots countered Loukaris' "Religious Humanism". For the first time members of Greek society expressed their explicit admiration for the scientific progress of the Europeans and asserted that "even Aristotle would have become one of their students had he lived in our times".[23] The third period, the "Greek Enlightenment", was the period during which the new philosophical and scientific ideas waged war against every expression of conservatism. The protagonists of this process were progressive scholars who got actively involved in reforming the intellectual life. Nonetheless, political and religious conflicts, as well as regressions of the scholars themselves resulted in the distortion of the new ideas and the undermining of the whole enterprise.

In conclusion, the documentation of Europe's influence on the ideological formation of the modern Greek identity and the tracing of the factors, which contributed to the integration of modern Greek society into the European family were the two central points of Dimaras' historiography. History of science occupied here, as it did for the previous generation of historians, a prominent position. For the former generation of historians, however, the scientific undertakings of the eighteenth-century scholars stood for retrieving the ancient heritage and reactivating nation's intellectual reflexes. For those who adopted Dimaras' overall approach, science was the ultimate symbol of European modernity. And, although history of science was already a distinctive academic discipline, these historians seem not to be interested so much in the content of the scientific pursuits of their actors as to the political ramifications of such pursuits. Thus, they mostly confined their studies to whether their actors had been dealing with the sciences or not, how "faithfully" they conveyed the various scientific theories, and what side had they taken in the debates between the progressive and the conservative powers of their time.

## The Neohellenic Revival

Michael Stephanides (1868-1957), a professor of the History of Natural Sciences in the Chemistry Department of Athens University since 1924, was the first academic who appreciated the significance of history of

---

[23] ΔΗΜΑΡΑΣ, "Τα 'Φιλοθέου Πάρεργα'", in Id., *Νεοελληνικός Διαφωτισμός* (cit. note 17), pp. 263-282: 273.

science in its own right. He published a series of studies on the eighteenth-century Greek scientific thought and had some correspondence with George Sarton.[24] As a follower of the positivist historiography, Stephanides sought to define the historical laws that govern the evolution of science.[25] According to his view, the knowledge of the natural world evolved from the ancient times to our days along a continuous line. The particular character of each historical phase of this evolutionary course was defined by the balance between "thought" and "idleness". "Thought" is the intellectual attitude that is oriented to the future and favours the further development of scientific knowledge, while "idleness" always inhibits progress in the name of the established traditional beliefs. This is the first law of the historical advancement of science. The second is derived from the principle of "recycling" and it holds that the most important scientific ideas of the past are usually re-asserted by later scientific theories and findings.[26] This assumption offered ancient Greek science a unique standing in history, since most devices of the Greeks were expected to obtain a distinctive position within the context of modern science. Thus, under the umbrella of positivism Stephanides placed an overt nationalism, quite distant from the humanistic origins of interwar positivism. His nationalistic conviction was based on the presumption that the starting point of every science could be found in ancient thought, whose direct inheritors were modern Greeks. Therefore, his endorsement of positivist historiography did not primarily aim at confirming the neutral and universal character of science (which might serve as a model for the organization of the society, as well)[27] but at documenting, in terms of "historical necessity", the preeminence of the Greek spirit, thus attributing a national dimension to history of science.

Stephanides' academic enterprise did not last long. His chair was abolished in 1939, after his retirement. By then he had already completed a long list of publications which he kept enriching until the late fifties. Besides the historical research he conducted, though, his contribution was important for another reason too: The confluence of his historiographic program with

---

[24] For a presentation of Stephanides' work see ΚΑΡΑΣ (ed.), *Επιστημολογικές Προσεγγίσεις στη Νεοελληνική Επιστημονική Σκέψη. Επιλογή από τα έργα του Μιχαήλ Κ. Στεφανίδη* (Athens: Τροχαλία, 1995). See, also, ΝΙΚΟΛΑΪΔΗΣ, "Ιστοριογραφία των Επιστημών" (cit. note 8).

[25] ΚΑΡΑΣ (ed.), *Επιστημολογικές Προσεγγίσεις* (cit. note 24), pp. 32-33.

[26] *Ibid.*, pp. 48-49.

[27] On the issue of positivist historiography of science, see RACHEL LAUDAN, "Histories of the Sciences and their Uses: A review to 1913", *History of Science*, 1993, *XXXI*: 1-34, esp. pp. 14-15.

Dimaras' studies of eighteenth-century intellectual life gave birth to a new trend in the historiography of modern Greek science. The historian who coupled the two traditions was Yiannis Karas (b. 1934). Karas established a research project in the National Research Foundation aiming at the investigation of the ways the new sciences had been transferred from Europe to the Greek-speaking regions of the Balkans. He built his historiographic approach around the antithesis between "tradition" and "innovation", a scheme reminiscent of Stephanides' antithesis between "thought" and "idleness". This scheme also reflects some aspects of Dimaras' historiography and more specifically the tension between the progressive and the conservative agents of each period. Although in the context of the general history of ideas, and especially in the hands of Dimaras himself, this tension was always placed in a broader cultural framework, this was not the case with Karas. Quite the contrary, by combining the tension between progress and tradition with the idea of the linear advancement of science, drawn from Stephanides, he reached a rather rigid conclusion: Every "well-perceived historical and philosophical research", he ascertains, aims at "tracing of the logic that governs the ceaseless flow of historical events" and at the determination "of historical necessity as an expression of a deeper rationalism, 'by means' and 'on the basis' of the historical fact".[28]

According to Karas, the scientific activity of the eighteenth-century Greek-speaking scholars was defined by two complementary factors. The first factor relates to the kind of scientific attainments these scholars were expected to assimilate: Modern science is perceived as a coherent system of epistemological principles which were developed in Western Europe during the Scientific Revolution and enabled a prolific inquiry into the natural world. As a result, the Greek-speaking scholars came to deal with a well-formed science, which had already defined the proper principles for natural investigation and had proven its efficiency on the theoretical, as well as on the practical level. The main task of the Greek-speaking scholars was to overcome the resistance of the various "traditional powers" and help the emergent society get acquainted with the intellectual developments of the civilized West.

The processes of verification, confirmation or rejection of the various philosophical-scientific hypotheses and theories had already been completed, the solutions found, and only a late echo of this struggle would reach the Greek intellec-

---

[28] ΚΑΡΑΣ, *Οι θετικές επιστήμες στον ελληνικό χώρο (15ος-19ος αιώνας)* (Athens: Δαίδαλος, Ι. Ζαχαρόπουλος, 1991), p. 10.

tual space and would persist as long as and to the extent that the traditional powers kept reacting to the spread of these new views.[29]

The second factor had to do with the way the Greek-speaking scholars had chosen to fulfil their task. The pressure of the circumstances was intense and the scholars of the time did not enjoy the ideal intellectual atmosphere, which would invite their participation in the production of new scientific knowledge. Having this in mind, they preferred to use the new knowledge as a means to promote a really urgent and politically important purpose: the modernization of the educational curricula and the intellectual awakening of the "enslaved" Greeks.

> Being conscious of the distance between Greek and European scientific and philosophical thought [the Greek scholar] correctly considered it less important to attempt to compose original texts than to transfer (through translations and compilations) the works of the Europeans [...]; to transfer the problems of modern European science to a different cognitive space and to elaborate theoretically on these problems with the perceptual tools of this space; to channel, more generally, European thought.[30]

Karas launched a research project under the title "History and Philosophy of Natural-Positive Sciences from the 15th to the 20th century (New Hellenism-Ottoman Empire-Greek state)". The project is hosted at the Institute of Neohellenic Research of the National Research Foundation and brings together a group of historians who had been working in various areas of modern Greek science. One specific feature of this project is that the researchers, in order to describe the assimilation of modern science within an intellectual environment dominated by the Christian Orthodox religion and the neo-Aristotelian philosophical tradition, have changed Dimaras' term "Greek Enlightenment" into "neo-Hellenic Revival". This differentiation is of special importance because one of Dimaras' basic assumptions was that the discontinuance of the Greek Enlightenment resulted from the fact that Greek society was admitted into the climate of the Enlightenment without having previously gone through a period of Renaissance like the rest of Europe.[31] On the contrary,

---

[29] *Ibid.*, p. 138 (my translation).

[30] *Ibid.*, p. 89 (my translation).

[31] The Greek word for both "Renaissance" and "Revival" is the same (Αναγέννηση). Although the historians of the project "History and Philosophy of Natural-Positive Sciences" prefer to render it into English as "Revival", in Greek it is clear that the use of the specific word serves also as a reference to the historical period of the Renaissance.

those who suggest the use of the term "neo-Hellenic Revival" seem to believe that the thorough study of this period's scientific texts indicates the intention of the eighteenth-century scholars to critically combine the ancient Greek science and philosophy with their contemporary Western attainments, achieving thus, wherever this was possible, a synthesis in accordance with the doctrines of the Orthodox church, but also an independent process of scientific development free from uncritical imitation and infertile denial. The [use of the] term "neo-Hellenic Revival" also makes adequately clear the social and national dimension of the prerevolutionary scholars' movement, insofar as the struggle against ignorance and superstition aimed at shaping the national self-consciousness and at the final confrontation with the Ottoman rule.[32]

The positivist context, however, sets serious limitations to this approach. The study of the "free from uncritical imitation and infertile denial" process of scientific development rests on a firmly fixed presupposition: the authority of modern science. Whether they fully endorsed or fully rejected or just combined the principles of this science with the local intellectual traditions, the eighteenth-century scholars were always accountable to the undeniable validity of Enlightenment's major intellectual achievement, that is modern science. Thus, almost all the published works of this group of historians aim at tracing back the sources of the Greek-speaking scholars' compilations and at examining the faithfulness of their natural interpretations as compared to the established science of their time. Accordingly, the notion of "synthesis" is chiefly used in order to account for the departures from the "scientific" orthodoxy and to offer explanations for the various distortions undergone by the scientific theories due to the philosophical and religious prejudices of the receiving environment. In either case, what seems to be really important for these historians is not so much the study of the various scholars' scientific achievements, but the study of their attitude towards the new ideas. Although the endorsement and the public promotion of the new scientific spirit, which would contribute to broadening the intellectual horizon of the emergent Greek society, might not reflect a deeper understanding of the technicalities of the new science, it is the touchstone for sorting the various scholars either on the side of "tradition" or on that of "innovation".[33]

---

[32] ΓΙΩΡΓΟΣ ΒΛΑΧΑΚΗΣ, "Η άλλη άποψη: Η 'Επιτομή Φυσικής Ακροάσεως' του Σέργιου Μακραίου", in *Οι Επιστήμες στον Ελληνικό Χώρο* (Athens: Τροχαλία, 1997), pp. 249-260: 250.

[33] Nevertheless, this approach has produced an impressive volume of historical works, which record the contact of the Greek intellectual life with the modern developments in science and philosophy. According to their view, what these historians try to achieve is to depict in an *unmediated* way the idea Greek-speaking scholars had about science. Despite its positivist incli-

For the historians of this project, science is not only the culmination of contemporary Europe's intellectual achievements; it is also a particular form of progress which is closely linked to the democratization of the society and to the participation of the lower social strata in the production and administration of knowledge. Karas himself places in the mid-sixteenth century the emergence of two intellectual currents that moved, for the most part, in parallel and, occasionally, in opposite directions ever since. One was the "scholarly" current, represented by a few established scholars who were in contact with the European scholastic tradition. The other was the current of the "common" tradition represented by anonymous authors who mostly dealt with the practical problems of everyday life. The distinction between the two currents can be made on the basis of the written sources they have bequeathed to us. In an early phase, the intellectual production of the "scholarly" current consisted in translations and commentaries of ancient philosophical works, while the "common" tradition was represented by works of minor intellectual range, like portolans, pamphlets of practical arithmetic, medical-philosophical treatises and books of augury. At this point Karas introduces the expression "popular thought" as a synonym of "common" tradition.[34] The apparently anachronistic reference to "the people" and its needs that permeates his work reveals the value judgments that inform his scheme.[35] The parallel lives of the two traditions went on until the eighteenth century, when they started to converge. The contact with the modern European thought and especially

---

nation, this is considered a necessary step establishing the ground for the evaluation of the content of the eighteenth-century studies about Nature. For a comprehensive overview of this group's production consult the voluminous collective work *Ιστορία και Φιλοσοφία των Επιστημών στον Ελληνικό Χώρο (17ος-19ος αιώνας)* (Athens: Μεταίχμιο, 2003). Other representative works of the group are: ΚΑΡΑΣ, *Οι Επιστήμες στην Τουρκοκρατία* (cit. note 5); ΒΑΛΑΧΑΚΗΣ (ed.), *Η νευτώνεια φυσική και η διάδοσή της στον ευρύτερο Βαλκανικό χώρο. Πρακτικά διεθνούς επιστημονικού συμποσίου, Αθήνα 17-18 Δεκεμβρίου 1993* (Athens: Κέντρο Νεοελληνικών Ερευνών Εθνικού Ιδρύματος Ερευνών, 1996); ID. (ed.), *Η ιστορική εξέλιξη της Χημείας στην Ελλάδα. Πρακτικά πανελληνίου συμποσίου 14-15 Οκτωβρίου 1994* (Athens: Ένωση Ελλήνων Χημικών, 1996); *Οι Επιστήμες στον Ελληνικό Χώρο* (cit. note 32); ΚΑΡΑΣ, *Η Ελληνική Επιστήμη και ο Βαλκανικός Χώρος (18ος-19ος αιώνας)* (Athens: Δαίδαλος, Ι. Ζαχαρόπουλος, 2001); ΔΗΜΗΤΡΙΟΣ ΚΑΡΑΜΠΕΡΟΠΟΥΛΟΣ, *Η Ιατρική Ευρωπαϊκή Γνώση στον Ελληνικό Χώρο, 1745-1821* (Athens: Σταμούλης, 2003).

[34] ΚΑΡΑΣ, *Οι θετικές επιστήμες* (cit. note 28), pp. 49-51.

[35] The notion of "the people" as a collective social category first appeared during the Enlightenment, but even then with highly negative connotations. Our familiar notion of the people is basically a product of the developments that followed the French Revolution. For the difficult shaping of this notion during the Enlightenment see the comprehensive article by HARRY C. PAYNE, "People", in *Encyclopedia of the Enlightenment*, edited by A.C. Kors, 4 voll., vol. 3 (New York: Oxford University Press, 2003), pp. 260-265. See, also, ΠΟΛΙΤΗΣ, *Ρομαντικά Χρόνια* (cit. note 14), p. 99, where the author claims that the current notion of the people was first shaped in JULES MICHELET'S, *Le Peuple*, originally published in 1846 and reprinted with a famous preface in 1865.

with modern science worked as a catalyst. On the one hand, the "scholarly" tradition took distances from the infertile commentaries and turned to the real-life problems; on the other hand, the "common" tradition fed by the "scholarly" tradition's contact with the European thought also took distances from superstition and the imaginary interpretations of the natural world and turned to useful knowledge with a view to upgrading the intellectual level of the lower social strata.[36] Although a complete conflation was never achieved, Karas' narrative seems to imply that the spread of the sciences helped shape, for the first time in recent Greek history, the notion of social progress in a way relevant to modern radical thought.

## New Trends

The purpose of this paper was to offer a brief – and rather sketchy – account of the various trends in the historiography of modern Greek science. An attempt was made to show that the history of the seventeenth and eighteenth-century sciences is not only related to but also dominated by the history of ideas. When it first appeared in the late nineteenth century, it comprised part of a broader enterprise aiming at the consolidation of the national identity of the relatively new Greek state. The scientific undertakings of the Greek-speaking scholars of the previous centuries bore witness to the survival of the nation's spirit, which after a temporal decline regained the impetus it had inherited from the ancient ancestors. Irrespectively of the content of such undertakings, scientific awareness itself was considered important because it indicated the dynamism and the cultural maturity of the nation's intellectuals. In Dimaras' hands scientific awareness also retained its central position at the expense of the content of scientific practice. Yet, this time the gist of historical narrative was the call of Europe. The Greeks of the Ottoman Empire did not only strive to assert their cultural and political independence, but also to ensure their integration into the European civilization. Thus, science was the carrier of a symbolic capital, which in the hands of the appropriate social groups (the enlightened Phanariot aristocrats and, especially, the late eighteenth-century bourgeois merchants), was expected to consolidate the European physiognomy of the nascent Greek national state.

Between the "cosmopolitan nationalism" of the first generation of historians of ideas and Dimaras' Eurocentric tradition lies Stephanides'

---

[36] Καρας, *Οι θετικές επιστήμες* (cit. note 28), pp. 129-130.

"nationalistic positivism". Of the various currents that converged to the history of modern Greek science, Stephanides' was the most scientifically informed. Even in this case, though, it was the *idea* of science and not the history of particular sciences that served historian's goals. Through a positivist perception of the history of science, Stephanides sought to confirm the predominantly Greek origin of science and to account for modern Greek science on the basis of the dialectical antithesis between progress and tradition. The programme "History and Philosophy of Natural-Positive Sciences from the 15th to the 20th century" of the Institute of Neohellenic Research combines Dimaras' and Stephanides' traditions. The agenda of the historians involved in this programme is built around the idea of *transfer* of scientific ideas from Europe to the Greek intellectual environment. "European science" retains an emblematic character, while the study of the Greek scientific activity primarily focuses on how successfully the attainments of European thought were transferred to a culturally underdeveloped and scientifically uninformed context.[37]

This historiographic framework is primarily a result of the fact that these historians subscribe to the centre-periphery distinction as an appropriate historiographic device for the history of science. This distinction was first introduced in order to depict the differences in economic and political structures between the industrialized and the less or non-industrialized countries of Europe. According to this model, a major characteristic of the periphery is its dependence upon the centre. Critical decisions related to the economic potentialities of the periphery have been taken in, or entirely influenced by, the centre. Moreover, because of the lack of local innovation, peripheries have been presented as importers of "new products, new technologies, new ideas" which emanated from the centres and were transferred to the peripheries by means of migration.[38]

---

[37] As it is stated on the web-page of the programme, some of the main goals of the group are:

A. The study of the channels through which the European scientific thought, the thought of the natural-positive sciences passed to the broader Greek (Balkan) thought and education; the depth of penetration and the extent of assimilation of the new knowledge, the acceptance of the new scientific knowledge by broader social groups and its connection with the technical sciences [sic].

B. The study of the influences – either vertical (ancient Greece and Byzantium) or horizontal (modern Europe) – which affected the formation of modern Greek scientific thought.

C. The outlining of the new quality, of the new identity, which was formed as a result of the contact with European knowledge and the study of the various kinds of reaction it caused.

[www.eie.gr/nhrf/institutes/inr/programmes/programme06-gr.html, November 14, 2006 (my translation)].

[38] PERCY SELWYN, "Some Thoughts on Cores and Peripheries", in *Underdeveloped Europe: Studies in Core-Periphery Relations*, edited by D. Seers, B. Schaffer, and M.L. Kiljumen (Has-

The past thirty years, this schema was widely applied in history of science, and Greek historians, like many other historians of the "periphery", became part of this general trend. Most of the studies produced in this area aimed at the investigation of the cultural aspects of the receiving environments, which *facilitated* or *undermined* the expansion of the sciences and technology, or even *distorted* the scientific and technological ideas in their way from the original source to the final recipient. Notwithstanding the problematic aspects of the centre-periphery dipole, pointed out by many scholars, the leading idea in most of these accounts was that the centre "produced" science and the periphery, more or less willingly, "embraced" it. As a result, scientific centres and scientific peripheries were defined on the basis of the separation of the production from the distribution of scientific knowledge.[39]

One important thing this approach fails to do, however, is to account for the sciences themselves. Reception studies mainly focus on the factors which affected the course of a more or less established science in the periphery, and examine only the alterations this science underwent in order to overcome the various constraints posed by the particular environments. Re-

---

socks: Harvester Press, 1979), pp. 37-39; EDWARD SHILS, *Centre and Periphery. Essays in Macrosociology* (Chicago and London: University of Chicago Press, 1975). Shils argued that "Society has a centre [...] The central zone, is not as such, a spatially located phenomenon [...] Its centrality has [...] nothing to do with geometry and little with geography. The centre, or the central zone, is a phenomenon of the realm of values and beliefs" (p. 3). See the recent discussion by PETER BURKE, "Centres and Peripheries", in *History and Social Theory* (Cambridge: Polity Press, 2005, 2nd edition), pp. 82-88. The idea of "semi-peripheries" has also been employed by some historians of science. See XAVIER POLANCO (ed.), *Naissance et développement de la science-monde. Production et reproduction des communautés scientifiques en Europe et en Amérique Latine* (Paris: Editions de la Découverte/Conseil de l'Europe/UNESCO, 1989).

[39] Indicatively: GEORGE BASALLA, "The Spread of Western Science: A three-stage model describes the introduction of modern science into any non-European nation", *Science*, 1967, *156*: 611-22; DAVID GOODMAN, *Power and Penury. Government, Technology and Society in Philip II's Spain* (Cambridge and New York: Cambridge University Press, 1988); POLANCO (ed.), *Naissance et développement de la science-monde* (cit. note 38); MARCOS CUETO, "Andean Biology in Peru: Scientific Styles on the Periphery", *Isis*, 1989, *80*: 640-658; JAN TODD, "Science at the Periphery: An Interpretation of Australian Scientific and Technological Dependency and Development Prior to 1914", *Annals of science*, 1993, *50*: 33-58; SVANTE LINDQVIST (ed.), *Centre on the Periphery: Historical Aspects of Twentieth-century Swedish Physics* (Canton, MA: Science History Publications, 1993); MARÍA JESUS SANTESMASES and EMILIO MUÑOZ, "The Scientific Periphery in Spain: The Establishment of a Biomedical Discipline at the Centro de Investigaciones Biológicas, 1956-1967", *Minerva*, 1997, *xxxv*: 27-45; CELINA A. LÉRTORA-MENDOZA, EFTHYMIOS NICOLAIDIS and JAN VANDERSMISSEN (eds.), *The Spread of the Scientific Revolution to the European Periphery, Latin America and East Asia*, Proceedings of the XXth International Congress of History of Science (Turnhout: Brepols Publishers, 2000); EKMELEDDIN IHSANOĞLU, *Science, Technology and Learning in the Ottoman Empire. Western Influence, Local Institutions, and the Transfer of Knowledge* (Aldershot, Hampshire: Ashgate, Variorum Collected Studies Series, 2004).

cent developments in history of science, however, prompted the shaping of a new frame for the historical study of the sciences in the periphery, which transcends this separation. In the context of the new *problematique* the sciences are not perceived as closed systems of ideas and practices, which have been unalterably established in different receiving environments. They are mostly treated as cultural phenomena deeply affected by the civilizational patterns of each specific social context. In this respect, an important task of the historian who studies the formation of modern scientific discourse is to take into account the cultural traditions and the social conventions which contributed to this process. The purpose of such an approach would not be to show how these factors prompted or prohibited the *discovery* of an indisputable natural truth, but to describe how the inscription of the local traditions and conventions on the structure of the scientific discourse *shaped* the natural truth in different places.[40] An immediate consequence of this historiographic view was that the notion of locality gained currency among historians of science. The idea that the formation of scientific discourse was mediated by economic, political and cultural factors drew historians' attention to the national styles of particular sciences.[41] At the same time, it offered a new standpoint for the study of the sciences in the periphery, that is in places which did not originally participate in the formation of the ideas and practices, which came to be known as modern science.[42]

These methodological developments offer a new context for the study of modern Greek science, as well. One dimension of this context concerns a certain "deconstruction" of the idea of "scientific centre". When one refers to the

---

[40] One of the most characteristic studies of this historiographic trend is STEVEN SHAPIN and SIMON SCHAFFER, *Leviathan and the Air-Pump: Hobbes, Boyle and the Experimental Life* (Princeton: Princeton University Press, 1985). See also MARIO BIAGIOLI, *Galileo, Courtier* (Chicago and London: The University of Chicago Press, 1993). The respective bibliography is quite extensive and displays many differentiations. For a comprehensive overview see ID. (ed.), *The Science Studies Reader* (New York and London: Routledge, 1999).

[41] MAURICE CROSLAND, "Presidential Address: History of Science in a National Context", *British Journal for the History of Science*, 1977, *10*: 95-113; JONATHAN HARWOOD, "Are there national styles of scientific thought? Genetics in Germany", in *Grenzuberschreitungen in der Wissenschaft*, edited by P. Weingart (Baden-Baden: Nomos, 1995), pp. 31-53; GERALD L. GEISON and FREDERIC L. HOLMES (eds.), *Research Schools. Historical Reappraisals*, *Osiris*, 1993, *8* (esp., GEISON, "Research Schools and New Directions in the Historiography of Science", *ibid.*, pp. 227-238).

[42] GAVROGLU (ed.), *The Sciences in the European Periphery During the Enlightenment, Archimedes*, 1999, *2*, special issue; JOSÉ RAMÓN BERTOMEU-SÁNCHEZ, ANTONIO GARCÍA-BELMAR, ANDERS LUNDGREN and MANOLIS PATINIOTIS (eds.), *Scientific and Technological Textbooks in the European Periphery, Science and Education*, 2006, *15*, special issue; ΜΑΝΩΛΗΣ ΠΑΤΗΝΙΩΤΗΣ (ed.), *Έθνος, επιστήμη, ταυτότητες. Η ιστοριογραφία της επιστήμης στην περιφέρεια της Ευρώπης, Νεύσις*, 2006, *15*, special issue; ANA SIMÕES, ANA CARNEIRO and MARIA PAULA DIOGO (eds.), *Travels of Learning. A Geography of Science in Europe* (Dordrecht: Kluwer Academic Publishers, 2003).

early modern period, the homogeneity of such cognitive enterprises as "Scientific Revolution", "science", "physics", "Newtonianism" is extremely vague. The broad discussion about the historiography of the Scientific Revolution, for example, as well as the discussions on the multiple aspects of Newtonianism during the eighteenth century have been quite convincing in moving away from a homogeneous view of early modern science.[43] In this respect, the notion of "scientific centre" *as a place where a well defined and uniform scientific enterprise was consensually agreed upon*, turns out to be heavily problematic.

Another dimension of the new methodological context relates directly to the notion of the periphery. Many of the drawbacks of current historiography could be avoided by focusing the analysis on the ways in which ideas, methods, instruments, and techniques which originated in a particular historical setting were introduced in a different place with its own specific intellectual traditions, and its political and educational institutions. New ideas are not introduced to be placed in any kind of void; they are always asked to displace other, usually strongly entrenched systems of thought. In this sense, new ideas aim at providing alternative methods and answers to questions for which peoples and cultures *already have adequate answers*. Thus, the receiving culture does not act as a passive recipient of whatever is being received. The transmission presupposes a selection among a whole range of different "items" and, moreover, the "items" that are transmitted undergo unexpected, and often startling changes. Particular forms of ideological resistance, the role of local scholars and audiences, and the public rhetoric of modernization, are all points to be taken into account when analyzing *the appropriation of the scientific ideas* in the new environment. The practical outcome of a historiography based on the notion of appropriation is that, instead of studying the process of transmission, it places emphasis on the new discourses that were, eventually, produced as a result of the scholars' active endeavour to incorporate new scientific ideas in their particular intellectual and social context.[44]

---

[43] See, for example, ANDREW CUNNINGHAM and PERRY WILLIAMS, "De-centring the 'Big Picture': *The Origins of Modern Science* and the Modern Origins of Science", *British Journal for the History of Science*, 1993, *26*: 407-432; H. FLORIS COHEN, *The Scientific Revolution. A Historiographical Inquiry* (Chicago and London: The University of Chicago Press, 1994); JOHN HENRY, *The Scientific Revolution and the Origins of Modern Science* (Houndmills, Basingstoke, Hampshire and New York: Palgrave 2002, 2nd edition). On the multiplicity and the diversity of interpretations making up the eighteenth-century European image of Newtonianism see PATINIOTIS, "Newtonianism", in *New Dictionary of the History of Ideas* (editor-in-chief Maryanne Horowitz), 6 voll., vol. 4 (Detroit: Charles Scribner's Sons, 2005), 1632-1638. For the great variety of social, cultural and symbolic uses of the Newtonian heritage see PATRICIA FARA, *Newton, the Making of Genius* (London and Oxford: Picador, 2002).

[44] ΚΩΣΤΑΣ ΓΑΒΡΟΓΛΟΥ, "Οι επιστήμες στον Νεοελληνικό Διαφωτισμό και προβλήματα ερμη-

One should expect that this change of perspective would help establish a new context for the history of modern Greek science not as a poor reflection of an indisputable Western science, but as a self-subsistent intellectual enterprise reflecting the active contact of the local intellectual life with the networks of European thought. Within this context, new questions come forth: How did the local society interact with the new knowledge, beyond the superficial level of the necessary adaptations? How did the scholarly communities actively modify and appropriate specific theories and technologies? How did the various actors make the new knowledge an organic part of their distinctive cultural setting? More importantly, which were the particular features of the intellectual syntheses that were produced in order to accommodate the new knowledge along with the established intellectual traditions and the social priorities of the emergent Greek society?[45]

---

νείας τους", *Νεύσις*, 1995, *3*: 75-86; GAVROGLU and PATINIOTIS, "Patterns of Appropriation in the Greek Intellectual Life of the 18th century: A Case Study on the Notion of Time", in *Revisiting the Foundations of Relativistic Physics: Festschrift in Honor of John Stachel*, edited by A. Ashtekar, R. Cohen, D. Howard, J. Renn, S. Sarkar, A. Shimony (Dordrecht: Kluwer Academic Publishers, 2003), pp. 569-591; PATINIOTIS, "Periphery Reassessed: Eugenios Voulgaris Converses with Isaac Newton", *British Journal for the History of Science*, 2007, *40*: 471-490. For other characteristic instances of a historiography explicitly or implicitly employing the notion of appropriation see: F. JAMIL RAGEP, SALLY P. RAGEP and STEVEN LIVESEY (eds.), *Tradition, Transmission, Transformation, Proceedings of two conferences on pre-modern science held at the University of Oklahoma* (Leiden, New York, Köln: E.J. Brill, 1996); MIKAEL HÅRD and ANDREW JAMISON (eds.), *The Intellectual Appropriation of Technology: Discourses on Modernity, 1900-1939* (Cambridge, MA: MIT Press, 1998); MASSIMO MAZZOTTI, "The Geometers of God: Mathematics and Reaction in the Kingdom of Naples", *Isis*, 1998, *89*: 674-701; NICOLAAS RUPKE, "Translation Studies in the History of Science: The Example of 'Vestiges'", *British Journal for the History of Science*, 2000, *33*: 209-222; AVNER BEN-ZAKEN, "The Heavens of the Sky and the Heavens of the Heart: the Ottoman Cultural Context for the Introduction of Post-Copernican Astronomy", *British Journal for the History of Science*, 2004, *37*: 1-28. THOMAS J. MISA and JOHAN SCHOT, "Inventing Europe: Technology and the Hidden Integration of Europe", *History and Technology*, 2005, *21*: 1-19.

[45] In a recent book Yiannis Karas makes an attempt to move towards a similar direction. He stresses the active role of the receiving environment and the processes of assimilation and adaptation of the European scientific thought to the local conditions. ΚΑΡΑΣ, *Οι Πνευματικές μας Παραδόσεις. Μια Νέα Προσέγγιση στη Νεοελληνική Επιστημονική Σκέψη* (Athens, 2005), pp. 31, 48, 82-84, 114, 125-128, 136-137, 151. Beyond the programmatic declarations, however, his historiographic goal differs significantly from the one described here, especially concerning its relevance to history of science. Speaking of local conditions, Karas basically refers to the "historical necessity" for the Greeks of the Ottoman Empire to establish a distinctive national identity and to promote their cultural and political independence. Thus, the active assimilation of the new "natural-positive sciences" mostly relates to the spread of the rational spirit and the emancipating dynamics of the new natural philosophy within a society seeking ways to promote its self-determination (pp. 40, 45, 47, 52, 70-71, 124). Although he emphasizes the importance of the synthesis of the various influences – local, ancient Greek, and contemporary European – that takes place in the scientific works of the time (pp. 116-117, 119-120, 136-137) he never proceeds to show how this synthesis leads to the formation of a new discourse about Nature. Quite the contrary, he seems to reclaim Dimaras' idea about the European identity of the Greek people by showing how the dialogue of the Greek-speaking scholars with their contemporary European philosophy secures a place for their audience within the broad European family (pp. 125,

At the same time, this change of perspective may help history of science get an independent standing within the broader context of Greek historiography. Dealing with history of science, so far, meant to apply the comparative methods of the history of ideas to the study of a particular subset of ideas. Giving history of Greek science an independent standing and drawing on its particular methodology and resources means to enrich history of ideas with new problems, new readings of the primary sources and new interpretations, which would be unattainable if one ignored the particular nature of scientific ideas.

128-135, 141). See, also, ΚΑΡΑΣ, *Η Ελληνική Σκέψη και ο Ενιαίος Ευρωπαϊκός Χώρος* (Athens: Δαίδαλος, Ι. Ζαχαρόπουλος, 2003).