

BOOK REVIEWS

The Jewish Alchemists: A History and Source Book. Raphael Patai Princeton University Press, Princeton, NJ, 1994, Paperback, 617 pp. \$24.95

In the standard history of chemistry textbooks authors usually write about the Chinese, Indian, Egyptian, Greek, Arabic, and European alchemies, though it is sometimes noted that alchemy had probably been present all over the world in some periods of history. So why should the Jews not have performed this mysterious practice? Alchemy seems to pertain to geographical areas or civilizations, less so to religions, as it was practiced by masters belonging to very different denominations. While Taoism, Hinduism, the Muslim church, and Christianity all occupied relatively well-defined geographical areas, Jews for the most part of their histories lived in small communities dispersed in territories dominated by other civilizations and religions. Perhaps this is the reason that the subject of Jewish alchemy has not been examined before. Another reason may be related to the Jewish tradition. Because alchemy in modern times has been considered not only unscientific but also suspicious, mostly performed by frauds in the hope to benefit from greedy and naive lords, it might have appeared better for the historians of Jews to overlook their being involved in such a sin. Hence, until now, historians of Jews regarded alchemy as an entirely insignificant aspect of their subject.

It is to Raphael Patai's credit that he showed how false these opinions are. Patai, a renowned scholar in the field of Judaic studies, arrived at his subject from Jewish studies, not from the history of chemistry. In this latter subject his brother, the late Saul Patai, organic chemist, editor of the book series, *The Chemistry*

of Functional Groups, probably was helpful; for Raphael dedicated his book to Saul. The Hungarian-born Raphael Patai divided his lifetime between Hungary, Israel, and the United States. His amazing knowledge of languages (Hungarian, Hebrew, English, German, French, Arabic, Persian, and Aramaic) made it possible for him to study the abundant, sometimes exotic sources he needed for doing this research.

The book consists of forty chapters divided into ten sections, arranged in chronological order. Each section covers a period, from the early biblical times up to the 19th century (when alchemy was still alive in North Africa), while the chapters are centered on some authors and/or sources. In this way, Patai leads the reader through all the existing sources possibly (but not always with certainty) related to Jews.

Indeed, what the reader can follow is not a continuous Jewish tradition, but rather the discontinuous line of some individual authors or some masters who were perhaps or surely Jewish. Patai identified them through the fragmented, printed and nonprinted sources hidden in archives and libraries in all relevant countries. Besides the well-known names, such as Maria the Jewess, he also found entirely forgotten Jewish alchemists that exerted important influence on Hellenist alchemy. He also ascertained that famous alchemists, such as Avicenna, had Jewish teachers and that some alchemists (*e.g.*, Artephius), though known otherwise, were in fact Jewish. Patai shed light on the shadowy origin of many Ancient and Middle Ages alchemist authors and also on the origins of such celebrities as the Comte de Saint-Germain in the 18th century. In these biographical sketches, the most fantastic stories are unraveled with the atmosphere of mystery and historic dimness when we learn, for instance, that the works attributed to the famous alchemist Raymond Lull were

actually written by several authors, among them some Jews. The identification of these authors might have been quite a complicated task.

The identification of texts written by Jewish authors required the same painstaking work of a philologist as that of the authors. Patai analyzed old manuscripts by linguistic and historical means to find texts, paragraphs, or just some words referring to Jewish connections. By this he established that, particularly in the Hellenistic period, the Hebrew words or just the Hebrew characters occurring in the non-Jewish alchemical texts gave the impression of authority to the readers of these texts, because at that time Jews were considered the most authentic experts in the field. Later, in gradually decreasing degree, the habit of using Hebrew expressions survived among the Arabic writers as well.

Often it was difficult to decide who the writer of a particular text was, and Patai explained the arguments for his stands with exciting details in an entertaining style. For instance, some of the texts were attributed to Maimonides, a most revered Jewish scholar in the 12th century, though he was an opponent of alchemy. Yet, some authors borrowed his authority to enhance their own credibility so much so that a pseudo-Maimonides emerged who authored alchemical texts in the name of Maimonides.

Besides the exciting, sometimes very amusing stories about the authors and texts, the greatest value of the book is that it contains translations of long and relevant parts from original manuscripts and rare books written in obscure languages. The texts contain detailed descriptions of apparatus, recipes, and materials just as alchemical texts usually do. In this way Patai significantly enriched our general knowledge about alchemy.

In addition, Patai attempted to follow the changes that occurred in the social roles of his heroes through the centuries from the point of almost invisible positions they occupied in the closed and insulated Jewish communities to recognized positions of informal membership in aristocratic circles. Unfortunately, this sociological line is not very well worked out. The author points out that the South European Sephardim community was the one that was in fact active in alchemy. When the East European Ashkenazim took over the dominant role in Jewry from the Sephardim in the 18th century, the interest of Jews in alchemy diminished. The connections with the non-Jewish community, the Jewish alchemists' social status, and the problem of secrecy, however, have not been thoroughly detailed.

A highly important question is whether the alchemy of the Jews differed cognitively from that of other groups. In this context Patai stressed that Jewish alchemy was basically practical, with less emphasis on theoretical interpretations. Indeed, with the help of Patai's book, in the future the experts of the history of alchemy may list the recipes, apparatus, and materials that were used specifically by Jews or subsequently taken over by non-Jews. Giving more stress to practical orientation, Patai proved that, in the Jewish tradition, alchemy meant a search for miraculous medications and cures, the "elixir of life," rather than endless attempts to transmute base metals into gold. Still, the texts he translated contain descriptions of many experiments intended to produce precious metals and stones from more common materials.

On the other hand, the theoretical, metaphysical background of Jewish alchemy appears quite similar to that of the Greeks, Arabs, and Europeans: all kinds of materials were supposed to be manifestations of the same ultimate, basic essence, which went through a long process of ripening inside the earth. Therefore, the alchemist should find either this basic essence, the philosopher's stone, which makes it possible to transmute any form into another form (in Aristotelian terms). Alternatively, relying on the basic identity of the matters, he should achieve the transmutation from one form to another without actually producing the basic essence. This latter method helps to ripen the materials more quickly than they would do solely by the forces of nature.

This theoretical approach was also absorbed by the kabbalah, through its most important book, the *Zohar* written by Moses de Leon in the 12th century, though the term alchemy was not mentioned in the *Zohar* nor in the Talmudic literature of that time. As the power of kabbalah rose in the 14th century, when alchemy had already reached a highly developed level, the Jewish authors took over its tenets and assimilated them into their thoughts. The kabbalah derived the possibility of transmutation from a spiritual not a material realm, but it also looked for an ultimate essence in the same way other alchemists did. In this tradition, the highly practical alchemy changed to a mysterious and mystic activity, a feature that became gradually more emphasized in the Middle ages. In the atmosphere of the Renaissance, the kabbalistic tradition and the Christian alchemists' reference to the Jewish literature contributed to the magical character of non-Jewish alchemy as well.

With the approach of the 17th century, the reader misses the comparison of Jewish alchemy with the gradually emerging chemistry. The strength of this book consists more in providing inventory-like descriptions of Jewish alchemists and their works rather than in analyzing them in terms of the history of philosophy, alchemy, and chemistry.

Patai did not intend to convince his readers of the existence of a long, continuous Jewish tradition with a series of great masters and many followers within the

history of alchemy. His book proves that some Jews can be found among alchemists and that alchemy, an important philosophy and practice in the history of mankind, had not been alien to Jewish religion and thinking. He found only Jewish alchemists and not Jewish alchemy as a tradition clearly distinguishable from the other traditions. *Dr. Gabor Pallo, The Institute for Philosophical Research of the Hungarian Academy of Sciences, Budapest V. Szemere u. 10, HUNGARY; e-mail: gabor.pallo@ella.hu*

The Business of Alchemy. Science and Culture in the Holy Roman Empire. Pamela H. Smith, Princeton University Press, Princeton, NJ, 1997, xii + 368 pp, paperback, ISBN 0-691-01599-6, \$ 29.95.

“The author to his good friend / which is very depressed by the distress and war. In order to do something against impoverishment and devastation ... and because I am sorry about your misery ... I have not any other means / but to tell you a good proposal and advice.” The long citation that introduces this review comes from a German book that appeared in 1684 as a translation of the French original. The title of this small tract is promising: *“Neue und sehr nutzbare Haushaltungs-Kunst ... Wie man mit 500 Gulden / ... jährlich 4500 Gulden / ... Mit Ehr und gutem Namen gewinnen kann...”*. This anonymous work documents the situation in Europe after the Thirty Years’ War, when the continent had been devastated by roving armies. As late as 1684 there was still a need to help improve the state of things. This German book appeared two years after the death of the protagonist in Smith’s book, his life having passed through this dramatic war and the subsequent decades. Johann Joachim Becher (1635 - 1682) became the child of a turbulent epoch that shattered the entire continent and brought about deep changes in society and its organization, in morals, economy, and also in science.

The book by Pamela Smith is impressive. It can be compared to a monumental canvas of European history in which the prominent figures are, however, not lost in the complicated background of the Holy Roman Empire split into many small states with different religious views, yet often joined by their poverty as well as by other links. Quite on the contrary, the reader is given a vivid picture of life at various royal courts, vicariously experiencing the feeling of sitting at the rich table of the West India Company enjoying exotic foods, and following in detail the struggle over the secret of a “cold fire,” phosphorus. There is less alchemy in this book than its title would suggest; it is rather an original portrait of an extraordinary man. Most readers with a background in chemistry know of Becher as a scientist whose “*terra pinguis*” paved the way to the phlogiston theory. This contribution of Becher is perhaps the only topic missing in the book. Yet, the absence of the roots of phlogiston theory does not change the fact that this book provides a thoughtful analysis of an important person and his world. Rich notes in the text, a long list of literature citations, and the list of Becher’s works make it an excellent contribution to the history of economics, education, and science; a book to which not much can be added. It ranks among the works by Dobbs on Newton, by Newmann on Starkey, or by Principe on Boyle.

Pamela Smith follows Becher’s life from childhood through its crucial stages at the noble courts in

Mainz, Munich, and Vienna. In other chapters she describes in detail his negotiations with the West India Company in an attempt to acquire a colony in the New World for his noble employers, and his plans of how to exploit this land. Eventually we also learn of Becher's alchemical undertakings. Individual stages of Becher's life are always presented within the broad framework of the political and economical situation. This approach makes it possible to understand more clearly the many activities of this undoubtedly extraordinary personality. Becher gained recognition in both positive, and if not negative, then at least less-positive respects. His broad interests ranged from attempts to invent perpetual motion and an artificial universal language, to problems of education and especially of the economy. At the same time he was "Hofmedicus" and a defender of alchemy. Becher clearly understood the deep social changes after the Thirty Years' War and tried to reflect this new state of things in his activities. Weakened traditional guild systems, the increasing role of towns, the shift of commerce from the country to ports as an effect of war: all of these and much more led Becher to the conviction that noble rulers must also be drawn into commercial society. This conclusion seemed all the more obvious to Becher after the Thirty Years' War with the appearance of a new aristocracy endowed with restricted rights as compared with the old traditional nobility, yet striving to achieve these rights and become influential.

It is interesting to follow Becher's economic views, according to which the mercantile cycle is a natural one similar to cyclic changes in nature. In his opinion money is the ultimate source of a ruler's authority, and therefore a ruler should become an entrepreneur if he wants to be successful, whereas wars and magnificent palaces would only result in loss and debts. According to Becher, only manufacturing and business can produce cash. He observed this evolution during his travel in Europe. In the second half of the 17th century, traditionally rich Spain was on the decline while Holland was prospering. As a result of his comparison of the poor royal court of Hanau and the wealthy merchants in Holland, Becher tried to graft the mercantile world onto the old aristocratic one.

This is the "positive" Becher, a man of a rather doubtful education who nevertheless saw many problems quite clearly. On the other hand, there was the Becher as a problematic personality, who fabricated various "stories" about himself to make a better impression, and who frequently came into conflict with his surroundings. As a result he moved, or was forced to

move, from one court to another. Some of these conflicts were the outcome of Becher's ambitious nature, yet some were unavoidable as conflicts between the old traditional world of guilds and landed nobility on the one hand and the new world of commerce on the other. This transition from agricultural to industrial society could hardly pass without controversy.

Although Becher devoted most of his life to economy, both theoretical in the form of books and tracts, and practical as a founder of manufacturing, his undertakings often failed. It is true that he saw clearly what was needed to help Europe improve its economy: the trend toward manufacturing, large-scale production, and innovation in all areas. There were, however, many Utopian ideas in his approach, as discussed in a recent publication [H. Breger, "Sozialutopische Tendenzen und (Al)chemie des 17. Jahrhunderts: Johann Joachim Becher und Johann Rudolph Glauber," *Aufklärung und Esoterik*, Hamburg, 1999]. This approach was part of what led to the repeated failure of Becher's projects.

On the other hand Becher reflected the changes occurring in society as well as at courts, and therefore his ambition was to function as an intermediary whether between craftsmen and his employers, or between alchemists and his noble sponsors. This activity stemmed from the weakening of guilds and from the changing position of alchemists. Especially in the 16th century, which witnessed the last flourish of European alchemy (as apparent from the number of printed books), alchemists constituted a typical group in royal courts. It was "fashionable" to employ court artists, musicians, astrologers, and alchemists. These groups mostly moved freely between various courts, with the exception of alchemists. Because they were expected to yield attractive results (gold being the most important one), the freedom of alchemists was often restricted; and because of the limitations of alchemy versus the hopes for untold riches, their life was often in danger. Sometimes they tried to reduce this danger by drawing up contracts with their noble employers [V. Karpenko, "Bohemian Nobility and Alchemy in the Second Half of the Sixteenth Century: Wilhelm of Rosenberg and Two Alchemists," *Cauda Pavonis*, 1996, 15 (2), 14]. Wealthy nobles in Central Europe often employed ten alchemists at once. As early as the 16th century, alchemists often produced something of value even when their attempts at transmutation of metals failed. These were products of practical importance such as paints, dyes, glues, but also various "aquam vitae," strong alcoholic beverages often prescribed for medical purposes. Less typical was a

book, “*The Art of Cooking*” written by Bohemian alchemist Bavor Rodovsky of Hustiran (? 1526 - ca. 1592/1600)].

Becher fully understood that to succeed he must regularly be in close contact with the nobility, to see and to be seen at court, and to cultivate personal connections (“Kundschaften”). One of the attractive activities he could propose was alchemy. Becher acted as a mediator between the alchemical world and the noble court, and for this he collected and published a large number of recipes in his famous “*Chymischer Glück-Hafen*” (1682). By that time, however, doubts concerning alchemical processes were gradually deepening, and the danger of extermination had not disappeared completely (as documented by the execution of Baron Krohnemann in 1686). Perhaps it was the increasing doubt about metallic transmutation, especially in the 17th century, that prompted production of coins and medals cast from the alleged alchemical noble metal. Coins and medals minted from supposedly transmuted metal represent something more than formless pieces of a precious metal. They could be looked upon as the first step to the further production of such metal, as expected by a noble Maecenas. At worst, if they represented only an isolated success, they could decorate the cabinets of curiosities popular at that time.

Becher seized upon this trend; as described in this book, he produced a medal from alchemical silver in July, 1675. His inspiration for this undertaking could perhaps be traced back to the Electors of Mainz, in whose service Becher began his career. Silver thalers dated 1630 struck by Anselm Casimir, Elector and Archbishop of Mainz, were said to be made from mercury. This conclusion was a result of misunderstanding, because the symbol ♀ on these coins is the sign of the mint master. As in more analogous cases with these signs, wish was here father to the thought. Seemingly more convincing Mainz ducats of 1658 from alleged alchemical gold [Becher mentioned them in his *Oedipus Chemicus*, Frankfurt, 1664, p 153] represent a complicated and confused situation. Smith writes (p 181 and footnote 2) that gold was made by transmutation before the Elector Johann Philipp von Schönborn (1605 - 1673, Elector and Archbishop from 1647). The same statement appears in other sources [K. Ch. Schmieder, *Geschichte der Alchemie*, Berlin, 1832, 402; H. Kopp, *Die Alchemie in älterer und neuerer Zeit*, Hildesheim, 1971, I, 141]. Yet other authors [P. J. Fabri, *Die hell-scheinende Sonne* ..., Nürnberg, 1705, unpaginated In-

roduction; *Die Edelgeborne Jungfer Alchymia*, Tübingen, 1730, 202; H. C. Bolton, *Am. J. Numismatics*, **1890**, 24, 83,] ascribe these coins to Georg Friedrich von Greiffenclau (1573 - 1629, Elector and Archbishop from 1626). The inscription GEORG FRID. on these ducats makes the second version more plausible. As in the preceding case, the symbol ♀ on these coins was explained as indicating that the gold from which they were minted was prepared alchemically. These coins are connected with the alchemist von Richthausen who performed a spectacular transmutation in the presence of the Habsburg emperor Ferdinand III in 1648. This story is mentioned by Smith, and there was yet another transmutation for this emperor by the alchemist J. P. Hofmann in Nürnberg one year earlier. There were also numerous coins of the Swedish king Gustavus Adolphus struck between 1632 and 1634 that were traditionally ascribed to alchemical activity. [The story of apothecary Strobelperger appeared in S. Reyher, *De nummis* ..., Kiel, 1692, 3 ff.]. Eventually Seyler's ducats struck allegedly by the emperor Leopold I appeared in the same year as Becher's medal. It should be noted that “Hoff Chymicus” Seyler was ennobled to von Reinburg, not von Reinberg as appears in Smith's book [details of his life in B. Koch, *Numismatische Zeitschrift*, **1990**, 101, 91 - 98]. Thus, there were ample examples to inspire Becher around this time. He could not but follow this trend and make himself visible in an analogous manner.

The production of coinage from alleged alchemical metal raised the crucial question as to whether one could become rich through alchemical transmutation. In this respect alchemy arrived at a crossroads that became especially apparent during Becher's life. We can distinguish three main positions as to what could be expected from alchemy at this time. The first one, represented by Becher, considered alchemy to be a “movable wealth:” knowledge of transmutation could be transferred from one place to another. Above all, Becher claimed that alchemy could provide the necessary means for the nobility to gain wealth. Robert Boyle, Becher's contemporary, although an ardent believer in alchemy, was more careful in answering this question. He represented the second viewpoint that metallic transmutation was possible, but not a practical means to wealth. [L. Principe, *The Aspiring Adept*, Princeton University Press, Princeton, NJ, 1998, 185]. There was also a third position represented in the anonymous tract cited at the beginning of this review. In its 47 pages we read detailed instructions of how to breed hens and become rich by

selling their eggs. The explanation for doing this is found on the last two pages, where it is stated: "... *and think, my dear friend, that never appeared better stone of alchemists than that from bellies of thine hens, and therefore, if you add pleasure to your work you can avoid danger brought by those alchemists who often put intentionally the inheritance of their fathers, and everything collected by their ancestors, into ovens and change it to smoke ...*". The anonymous author, as the title of his work suggests, laid stress on honorable activity; alchemists were discredited, not only by him, but by a growing number of his contemporaries.

There is a striking contrast between alchemist-dreamer Becher, on the one hand, and the unidentified pragmatic on the other. Yet they both shared the same intention: to improve the bad economy that plagued most of Europe after the Thirty Years' War. As the practical approach (not restricted to the production of eggs) gradually gained a firm basis, alchemy became an obscure activity. This process, which took another hundred years following Becher's death, is another story. Pamela Smith presents an excellent picture of a remarkable personality in the boiling pot of Europe in the second half of the 17th century, during the final stage of alchemy. V. Karpenko, Charles University, Prague, Czech Republic.

Communicating Chemistry: Textbooks and their Audiences, 1789-1939. A. Lundgren and B. Bensaude-Vincent, Ed., Science History Publications/USA, Watson Publishing International, Canton, MA, 2000. vii + 465 pp. \$56.

This assembly of chapters on chemistry texts is the outcome of a workshop held in Uppsala in 1996 and edited by two of the contributors, A. Lundgren and B. Bensaude-Vincent. In the 17 chapters chemistry is described as it evolved through texts of varying form and quality in 8 different countries, France being most prominently represented with six chapters. Germany, Sweden, and Britain each are allotted two chapters, while a single chapter each covers chemical texts in Spain, Hungary, Russia, and the United States. A unique chapter on the development of quantum chemistry involves texts written in the US and Britain. The title is somewhat misleading, inasmuch as the time span extends either to the mid-19th century or to the end of the 19th century, in all chapters except four. There is no apparent order of appearance of the chapters, neither according to nationality, chronology, nor alphabetically by author. An extensive introduction by J. H. Brooke is based on his con-

cluding remarks at the meeting. It is an invaluable summing up of many of the issues raised by individual authors. These include the definitions of texts, the motivation of textbook authors, the promulgation of pet theories and research accomplishments through texts, translations of texts and misunderstandings or misinformation that may result, and the various audiences to which texts are directed. Brooke observes that modern scientific textbooks had their beginning in about the mid-1800s; but a scholarly treatment of texts in their historical context has not been a popular branch of research.

It would be inappropriate to provide a detailed description of each of the contributor's analysis of textbook writing and its impact on chemists. The approaches vary considerably. I can hope only to cover some of the characteristics of these approaches by mentioning features in individual chapters (identified by the last name of the first author). The number of texts on which a chapter is based varies from over 200 (Lundgren, Orland) to a few (Nieto-Galan, Palló), to that of a single author (Blondel-Mégrelis, Brooks, Nye). Some authors have meticulously grouped and annotated the primary sources for easy reference (Bensaude-Vincent, Knight, Pigeard, Sanchez), whereas others have mixed the primary sources with secondary sources (Dolan). The texts

vary widely from being highly applied (Nieto-Galan, Dolan, Sanchez) to ones directed toward popular audiences, including women (Knight, Orland, Pigeard). In several cases the direction of textbook writing for students was driven by the developing educational system (Belmar, Bensaude-Vincent, Knight, Lind, Sanchez). Single themes are the subject of some texts: dyeing (Nieto-Galan); water (Izquierdo); atomism (Kounelis); and quantum chemistry (Gavroglu). Some authors have interpreted the effect on textbook writing of such factors as politics (Palló) and a strong personality (Nye). Mendeleev's textbook writing facilitated his formulation of the periodic table (Knight), and Berzelius' strong influence on European chemistry far beyond his native Sweden came about through Wöhler's German translation and that subsequently into French, Dutch, Italian, and Spanish (Blondel-Mégrelis). His text was apparently never translated directly into French, although some attempts were undertaken. In the chapter by Lundgren, the reader is shown how Berzelius' era gradually gave way to second and third generations of Swed-

ish texts where the emphasis was on analytical and then organic chemistry. Finally, the separation of chemistry from physics is treated in two contrasting chapters. One by Lind covers this trend in Germany between 1780-1820; in the other (Gavroglu) the influence of early US and British texts on quantum chemistry was to render it as distinct from quantum mechanics.

The book is relatively free from awkward phrases and typographical errors, in spite of the fact that most of the chapters have been translated into English from the authors' native tongues. Missing words or phrases are nevertheless distracting (pp 17, 23, 171), as are obscure terms such as 'authorial' (p 276), 'legitimation' (p 280) or vague descriptions like "philosophical apparatus" (pp 145, 159) and "pedagogical marketplace" (p 146 ff). The reader will be deeply impressed with the huge number and wide variety of chemistry texts—defined in the broadest sense—belonging to our professional heritage. *Paul R. Jones, Department of Chemistry, University of Michigan.*

Four Centuries of Clinical Chemistry. Louis Rosenfeld, Gordon and Breach Science Publishers, Amsterdam, 1999. xvii + 562 pp, hardbound, ISBN 90-5699-645-2, \$149. (Available from AACC Press or directly from the publisher, PO Box 566, Williston, VT/USA 05495-0080).

This is a must for anyone remotely interested in clinical chemistry and well worth purchasing, even if costly. It is not merely the first book written on the history of clinical chemistry, but its contents are fascinating reading.

The book glows particularly in its coverage of the modern era. This is true to no small extent because of the work of several members of the AACC History Division, its predecessor committees and some of our re-

cently departed colleagues who wrote or stimulated the writing of many articles published in *Clinical Chemistry* since its beginnings in 1955. But the book contains much more of historical interest on such topics as the evolution of hypodermic syringes; origins of the chemical glassware industry in the US; commercial laboratories and World War I; and outstanding textbooks on clinical chemistry in the 19th century.

Clinical chemistry could become an entity only when medical and chemical sciences were allied. But four centuries ago this could only happen as medicine departed from its concepts of "humoral" pathology and philosophy and entered into laboratory post-mortem examination to learn the causes of disease, requiring study of "normal" human anatomy and physiology. Chemistry had to venture from alchemy's quest for the philosopher's stone to transmute metals into the testing

of biological materials while ignoring the “vitalists” who mixed in discouraging spiritual concepts about the creation of blood and issues.

In the first few chapters Rosenfeld reviews the fascinating evolution of clinical chemistry from its origins and development in the 17th and 18th centuries, and its solidification in the 19th century. He wisely does not separate the unfolding of the many scientific aspects of clinical chemistry into a matter of centuries, but deals with specific topics from their beginnings to their current status at the close of the 20th century. The last half of the book covers the actual birth and flowering of the profession: the specifics of laboratory transition from qualitative to quantitative chemical testing, the work of the giants in the field, the unfolding of new instrumentation and technology, and the growth of clinical chem-

istry via technical societies and publications. Nothing is mentioned without documentation cited with each chapter and in the bibliography at the book's end.

This book pays homage to the science of clinical chemistry by a faithful, skillful, and lucid elaboration of its history. We readers emerge with a stronger backbone and a just cause of pride. It is a book addressed not only to clinical chemists but also to all those who are involved in medical technology, their teachers, and the few who love history whether of medicine or chemistry. *Samuel Meites, Department of Laboratory Medicine, Children's Hospital, 700 Children's Drive, Columbus, OH/USA 43205.* [NOTE FROM EDITOR: An earlier version of this review appeared in *History Newsletter*, AACC Division on the History of Clinical Chemistry, Volume 9, Number 1, 200.]

EURESCO CONFERENCE 2001

HISTORY OF EUROPEAN CHEMISTRY AND CHEMICAL TECHNOLOGY

Hosts: Society of Greek Chemists, Greek Science Center and Museum for Technology,
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May 18 – 23, 2001

Kalamaki Beach Hotel, Corinth/GREECE

Organizing Committee Chairperson:
Prof. Dr. Dr. Evangelia A. Varella
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The conference deals with adulterations and quality control of ancient, mediaeval, and modern times and an investigation of the historical evolution of techniques and concepts, as well as their social implications. Invited speakers from all over Europe will participate in discussions and round tables. Younger scientists will have the opportunity to present posters and short papers. Contact Dr. Varella.