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A True Light in the Darkness: Gasparo Scaruffi and a Monetary Chimera in the Sixteenth Century*Historical introduction*

Between the sixteenth and seventeenth centuries, Italy definitively lost its economic centrality. The commercial and credit centers of Genoa, Milan, Florence and Venice could not withstand the trade shift from the Mediterranean Sea to the Atlantic Ocean. The decline in trade led to the bankruptcy of many private bankers, which was followed, in a ripple effect, by a long crisis in manufacturing and production.¹ The economic crisis affected social psychology, leading to a sharp reduction in banking and financial activities. The entire system also found itself unprepared for the inflationary spiral that spread across the continent, generated by the influx of silver and other metals from the Spanish territories of America.

The negative situation extended from Spain to its possessions outside the Iberian Peninsula, especially the Italian ones. “[T]he value of money is fickle,” wrote the British historian Marjorie Grice-Hutchison, describing the pain that afflicted Europe at this time, adding that “gold and silver are not synonymous with wealth. [...] The dream of *El Dorado* had been followed by a harsh awakening.”² Those tensions had a clear moment in the Spanish *Revueltas of the Comuneros*³ and in the fire of the Medina del Campo in August 1520.⁴ In Italy, in particular, inflation extended to the agricultural sector in the face of demographic growth and increasing demand for food products. The return to extensive agriculture, without any real productive change and in the context of a structural crisis, caused some historians to speak of a *process of refeudalization*.⁵

¹ Carlo M. CIPOLLA: “The Economic Decline of Italy”. In Carlo M. Cipolla (ed.): *The Economic Decline of Empires*, London, Routledge, 2010, 202.

² Marjorie GRICE-HUTCHISON: *The School of Salamanca*, Oxford, Clarendon Press, 1952, 1.

³ José Antonio MARAVALL: *Las comunidades de Castilla: Una primera revolución moderna*, Madrid, Revista de Occidente, 1970; and Joseph PÉREZ: *La révolution des “Comunidades” de Castille (1520–1521)*, Bordeaux, Institut d’Etudes Ibériques et Ibero-Américaines, 1970.

⁴ Aurelio ESPINOSA: *The Empire of the Cities: Emperor Charles V, the Comunero Revolt, and the Transformation of the Spanish System*, Leiden, Brill, 2009, 71.

⁵ The term “refeudalization” (or, more rarely, “feudal restoration” or “feudal offensive”) has come into use to indicate “the reappearance of a whole array of privileges, prerogatives, abuses, and shackles” in the countryside at the hands of the landed nobility, with the result that “peasant conditions experienced a slow, but continuous deterioration.” A further consequence, it has been claimed, was that a once dynamic economy driven by a progressive middle class was increasingly “smothered” and underwent a “process of involution,” at the end of which the feudal nobility had secured a commanding position in both economic and social terms.” Domenico SELLA: *Italy in the Seventeenth Century*, London, Routledge, 2014, 113.

While the theme of inflation and monetary alteration appeared many times throughout the Old Continent, in Italy it assumed the bitter tones of a tragedy. The peninsula was divided between many states and small principalities, and faced geopolitical changes as sudden as they were traumatic. Precisely for this reason, Italians' reflections on such events were both passionate and highly scientific. Ironically, Hayek argues in the opening pages of *Price and Production* that sixteenth-century Italy had “the worst money and the best monetary theory.”⁶ In this context, Gasparo Scaruffi published his *L'Alitinofo* in 1582 in Reggio Emilia, imagining a *universal stable currency*. The treatise is both a technical argument about metallurgy and coinage as well as a proposal for a new international monetary policy. It arose from the intersection of multiple forms of expertise in Renaissance Italy, namely commercial mathematics, metallurgy – historically linked to alchemy⁷ –, and monetary theories.

Between Emilia and Europe

Among the numerous independent political and territorial entities of Italy during the early modern age, the Duchy of Modena and Reggio was geostrategically preeminent due to its hinge position between Tuscany, the Papal States, Lombardy and the plains between the Po, the Adige, and the Venetian lagoon. Furthermore, from a historical and cultural standpoint, the duchy is inextricably linked to the *House of Este* and its related political vicissitudes.⁸

Situated on the *Via Emilia*, Reggio is historically at the center of mercantile traffic, not only between Romagna and the Po Valley,⁹ but also at the dynamic crossroads between Genoa and Venice.¹⁰ The trade in silk and wool was predominant, as

⁶ Friedrich A. HAYEK: *Price and Production*, New York, A. Kelly Publishers, 1935, 2.

⁷ Useful connections between alchemy and coinage can be found in Pamela H. SMITH: *The Business of Alchemy: Science and Culture in the Holy Roman Empire*, Princeton, Princeton University Press, 1997; as well as in Sebastian FELTEN: *Money in the Dutch Republic: Everyday Practice and Circuits of Exchange*, Cambridge, Cambridge University Press, 2022.

⁸ See Claudio M. GOLDONI: *Atlante Estense. Mille anni nella storia d'Europa. Gli Estensi a Ferrara, Modena, Reggio, Garfagnana e Massa Carrara*, Modena, Artestampa, 2011; Alessio ANCESCHI: *Geografia degli Stati Estensi: i confini dell'Emilia e dell'alta Toscana e le strade del ducato*, Sassuolo, Incontri, 2016; Riccardo RIMONDI: *Estensi: Storia e leggende, personaggi e luoghi di una dinastia millenaria*, Ferrara, Cirelli e Zanirato, 2004; and Luciano CHIAPPINI: *Gli estensi. Storia di mille anni*, Ferrara, Corbo Editore, 2001.

⁹ Alfredo SANTINI: “L'economia reggiana nell'epoca di Scaruffi”. In Alfredo Santini (ed.): *L'unione monetaria nel Rinascimento: l'«Alitinofo» di Gasparo Scaruffi per il duca d'Este*, Ferrara, Corbo Editore, 1999, 37–55.

¹⁰ See Maria FUSARO: “Genoa, Venice and Livorno (a tale of three cities)”. In Maria Fusaro (ed.): *Political Economies of Empire in the Early Modern Mediterranean: The Decline of Venice and the Rise of England, 1450–1700*, Cambridge, Cambridge University Press, 2015, 89–109; and Giovanni ASSERETO: “Lo sguardo di Genova su Venezia. Odio, ammirazione, imitazione”. In Uwe ISRAEL (ed.): *La diversa visuale: Il fenomeno Venezia osservato dagli altri*, Roma, Venetiana-Centro Tedesco di Studi Veneziani, 2008, 89–114.

was their transformation into valuable fabrics.¹¹ Their manufacture was renowned outside the borders of the peninsula.¹² In this context, Gasparo Scaruffi was born on May 17, 1519, into a wealthy family involved in international trade and banking, part of a dense network of financial exchanges both *ad intra* to Florence and Rome and *ad extra* to Flanders and England.¹³

International trade is by no means unrelated to monetary conflicts. Moral debates also flourished, especially and not surprisingly in Italy and Spain. It is not at all a coincidence that the most eminent theologians, such as the Dominican Domingo de Soto¹⁴ and the Jesuit Diego Laínez,¹⁵ were engaged in these economic disputes, with completely original and interdisciplinary nuances in the conjunction between law, theology, and economics. From their analysis of the cycles of instability and volatility, the canonists and moralists deepened their understanding of the temporary validity and eventual expiration of “monetary contracts.”

Gasparo Scaruffi

The Scaruffi family was one of the most influential in Reggio Emilia in the sixteenth century. Their banking activity mainly supported textile manufacturing and export. After they purchased farms and fertile land in the Po valley, the trade and production of agricultural goods, especially cereals, also became significant. Yet there is little information about Gasparo Scaruffi’s early years. It appears that his

¹¹ Stefano COMINO – Alessandro GASPARETTO: “Silk Mills in the Early Modern Italy”. *Advances in Historical Studies*, 2020/9. 284–294. See also: Carlo PONI: “Archéologie de la fabrique: La diffusion des moulins à soie ‘alla bolognese’ dans les états vénitiens du XVI e au XVIII e siècle”. *Annales E.S.C.*, 27, 1972. 1475–1496; and Francesco BATTISTINI: “La Tessitura Serica Italiana durante l’Età Moderna: Dimensioni, Specializzazione Produttiva, Mercati”. In Luca Molà – Reinhold C. Mueller – Claudio Zanier (eds.): *La seta in Italia dal Medioevo al Seicento: dal baco al drappo*, Venezia, Marsilio, 2000, 335–351.

¹² John H. MUNRO: *The Rise, Expansion, and Decline of the Italian Wool-Based Textile Industries, 1100–1730: A study in international competition, transaction costs, and comparative advantage*, Working Papers 440, Toronto, Department of Economics University of Toronto, 2011; and Luca MOLÀ: *The Silk Industry of Renaissance Venice*, Baltimore, John Hopkins University Press, 2000.

¹³ Marco BIANCHINI: “Una famiglia, una città, un visionario progetto”. In Angelo Mazza – Elio Monducci – Maurizio Zamboni (eds.): *Palazzo Scaruffi. Storia, Arte, Restauri*, Parma, Grafiche Step, 2010, 9–36. Apart from this primary reference, all biographical and historical information about Gasparo Scaruffi and his family throughout this article is taken from the following texts and monographs (in Italian): Andrea BALLETTI: *Gasparo Scaruffi e la questione monetaria nel secolo XVI*, Modena, G. T. Vincenzi e Nipoti, 1882; Alfredo SANTINI (ed.): *L’unione monetaria nel Rinascimento: l’Alitinofo di Gasparo Scaruffi per il duca d’Este*, Ferrara, Corbo Editore, 1999; Giuseppe GIANNANTONI: *Il “Vero lume” di Gasparo Scaruffi e la ricerca della moneta universale (secoli XVI–XVIII): L’alchimia monetaria di un finanziere italiano del Rinascimento*, Bologna, Compositori, 2000; Marco BIANCHINI: “Gasparo Scaruffi”. In *Il Contributo italiano alla storia del Pensiero: Economia*, Roma, Istituto dell’Enciclopedia Italiana, 2012, 142–146.

¹⁴ Georges JARLOT: “Dominique de Soto devant les problèmes moraux de la conquête américaine”. *Gregorianum*, Vol. 45, XLIV/1, 1963. 81–87.

¹⁵ H. GRISAR (ed.): *Jacobi Lainex disputationes Tridentinae*, Innsbruck, 1886, T. II, 227–321.

education took place within the classical perimeter of the *abacus schools* that were very developed in Central-Northern Italy at the time. These institutions offered mainly technical-economic training through the teaching of accounting methods and the use of tools to test coins and precious metals, as well as financial knowledge based on bills of exchange, insurance techniques, and international banking transactions.

This pedagogical background would have been shared with other members of Gasparo's family. His brother Gian Maria held one of the highest offices of the municipal mint in 1542, and in 1546 his name was listed among the *Elders of the Municipality* who discussed the *salt tax* and the problems of monetary exchange in trade with Ferrara. In 1544, Gasparo worked in Piacenza at the *Banco di Agostino da Lodi*. We are not able to say whether this was an apprenticeship or something more, but the experience was certainly central to his formation and to the development of his theories.

In 1547, Gasparo was entrusted with the prestigious position of assayer of the Mint. This experience prepared him for a delicate task of monetary diplomacy. It was discovered that some coins in use in Reggio were suffering an unfair depreciation compared to other currencies that were equivalent in terms of metallic composition. A revaluation was therefore necessary through a wise mix of political skills and technical knowledge. The success of this effort led him to win a contract for the production of coins. From 1550 until 1555, he was the head of his bank at a time of political change. The new Prince Alfonso II was attempting to forge a strategic balance between the Papacy, the Empire, and the Spanish dominions to which Milan belonged at that time.¹⁶

Under the government of Alfonso II, all monetary power was concentrated in Ferrara, effectively depriving Reggio Emilia and Modena of the right to mint coins. This was a cause of cyclical tensions that led Scaruffi to once again head a delegation to discuss the value and role of various foreign currencies that were circulating in Reggio and provoking speculative bubbles as well as difficulties in real valuation.

Practical methods and economic language

Authors' libraries and letters are an inexhaustible source of information about how ideas emerge and evolve.¹⁷ According to the chronicles, the notary Prospero Bisi was the person in charge of the contract for the printing of *L'Alitino*. In his documents, a catalogue of books was found, and a significant part of the listed texts are *abacus*

¹⁶ Carlo M. CIPOLLA: *Il governo della moneta a Firenze e a Milano nei secoli XIV–XVI*, Bologna, Il Mulino, 1990, 258.

¹⁷ A very important archival source is the so-called "Note Archivio Scaruffi," donated by Maria Balletti Ghidoni, daughter of the economist Andrea Balletti, to the Library Panizzi in Reggio Emilia (376 CC).

treatises. This catalogue can certainly be linked to Scaruffi and his milieu.¹⁸ In this framework, the Franciscan Luca Pacioli's *Summa de arithmetica, geometria, proportioni e proportionalità* (1494) is often considered to be the point of reference for accounting and applied mathematics, but his contribution summarizes and completes a long tradition without which this kind of work would not have been possible.¹⁹ The *abacus teachers* had consolidated the knowledge of the time,²⁰ including the method of the *false position* and the *double false position*.²¹

The main interests of Gasparo Scaruffi can be summarized in three broad areas: abacus, natural philosophy, and texts of classical and religious culture. The formation of a specific technical and practical language emerges with a recourse – common in the Renaissance – to an articulated prose rich in alchemical (and, in some cases, esoteric) terminology.²² Among the contemporary authors present in his library, two deserve our attention: Giovanni Agostino Panteo and Vannoccio Biringuccio.

Panteo (d. 1535), a Catholic priest, published a work entitled *Ars transmutationis metallica* (*The Art of Metallic Transformation*) in Venice in 1519. Although the Council of Trent had prohibited the practice of alchemy since 1488, precisely because of problems relating to the counterfeiting of coins, the ecclesiastical authority and Pope Leo X authorized the manuscript's publication. This demonstrated the severity of the monetary crisis²³ and the attempt to find possible solutions in that (atypical) convergence of inorganic chemistry and a "cabala of metals."²⁴ In 1530, Panteo published a treatise with the cryptic title "*Voarchadumia contra alchimiam: ars distincta ab archimia, et sophia: cum additionibus, proportionibus, numeris et figuris*," in which he proposes a new chemical science.²⁵

¹⁸ It is very likely that this entire library belonged directly to the Scaruffi family, because Prospero Bisi was their personal notary.

¹⁹ Giovanni PATRIARCA: "Escuelas de ábaco: La invención de un lenguaje". *Mirabilia Journal*, 32, 2021/1. 48–80.

²⁰ Elisabetta ULIVI: "Scuole e maestri d'abaco in Italia tra Medioevo e Rinascimento". In Enrico Giusti – Raffaella Petti (eds.): *Ponte sul Mediterraneo: Leonardo Pisano, la scienza araba e la rinascita della matematica in Occidente*, Firenze, Polistampa, 2016, 121–159; Raffaella FRANCI – Laura TOTI RIGATELLI: "La matematica nella tradizione dell'abaco nel XIV e XV secolo". In Carlo Maccagni – Paolo Freguglia (eds.): *Storia sociale e culturale d'Italia*, vol. V: *La Storia delle Scienze*, Busto Arsizio, Bramante Editore, 1989, 68–94; and Luigi MAIERÙ – Massimo GALLUZZI – Nadia SANTORO: *La tradizione latina, Fibonacci, le scuole d'abaco, il Cinquecento*, Roma, Aracne, 2012.

²¹ Vico MONTEBELLI: "Ex falsisverum: Il metodo della falsa posizione, semplice e doppia, nell'ambito della matematica abachistica del Medioevo e del Rinascimento". *Quaderni dell'Accademia Fanestrese*, 2004/3. 191–230.

²² Erwin F. LANGE: "Alchemy and the sixteenth century metallurgists". *Ambix*, 13/2, 1966. 92–95.

²³ Fausto PIOLA CASELLI: "Innovazione e finanza pubblica: Lo Stato Pontificio nel Seicento". In Società Italiana degli Storici dell'Economia: *Innovazione e sviluppo: Tecnologia e organizzazione fra teoria economica e ricerca storica (secoli XI–XX)*, Bologna, Monduzzi, 1996, 449–464.

²⁴ Peter J. FORSHAW: "Cabala Chymica or Chemia Cabalistica: Early Modern Alchemists and Cabala". *Ambix*, 60/4, 2013. 361–389.

²⁵ Scaruffi quoted the *Voarchadumia* in capital letters on p. 58a (Chapter XLVII) of his *L'Alitinofo*.

Thanks to his practical experience in various Italian cities, Biringuccio (1480–1539) wrote the first manual on metallurgy: *De la pirotechnia*. It was published posthumously in 1540. Among other things, it deals with various metals, the research and examination of minerals, discovery of mines, and construction of tunnels. Although the presentation of metals and minerals, starting with gold, silver, copper, and lead, is a summary of the known literature of the time, the manual also contains – in addition to precise technical information – the first instructions for isolating antimony.²⁶

According to C. S. Smith and M. T. Gnudi, “written by a master craftsman in a time when knowledge was kept alive by the spoken rather than the written word, this classic marked the beginning of a true technological literature, with both craftsmanship and science united by a writer’s pen to form a record of an important facet of man’s achievement as a stimulus to further advance.”²⁷ Biringuccio’s fame had, in fact, led him to offer his services in Siena, Florence, Venice, and Rome, where he became head of the Apostolic Foundry and director of the papal artillery factory. It is also interesting to note that his work predates the *De re metallica* by Georgius Agricola by about 14 years.

A True Light in the Darkness

In these circumstances Scaruffi began to write *L’Alitinofo*. In a tradition typical of the Renaissance and the modern age, the title is a neologism resulting from the union of two ancient Greek words that together mean “true light.” Another custom of the time was a summary subtitle from which the central theme emerged: “reason and concordance of gold and silver; which will serve in universal; just to provide for the endless abuses of shearing and spoiling coins; how much to settle all sorts of payments, and also reduce the whole world to a single currency.”²⁸ According to the author, the work was written at the request of Prince Alfonso II²⁹ and Alfonso Tassoni, governor of Reggio Emilia.³⁰

²⁶ John PERCY: *Metallurgy: The Art of Extracting Metals from Their Ores. Part I: Silver and Gold*, London, John Murray, 1880, 673.

²⁷ Vannoccio BIRINGUCCIO: *Pirotechnia*, edited and translated by Cyril Stanley Smith and Martha Teach Gnudi, Cambridge, MA, Massachusetts Institute of Technology, 1959, II.

²⁸ Gasparo SCARUFFI: *L’Alitinofo*, Reggio Emilia, Hercoliano Bartholi, 1582, front cover. All quotations will be taken from this original edition. According to the custom of the time, numbered pages have a front and a back, so in this article each page will be followed by the letter *a* (front) or the letter *b* (back).

²⁹ See Guido PANCIROLI: *Storia della Città di Reggio*, Reggio Emilia, G. Barbieri e Soc. Editori, 1846, Libro VIII, 267.

³⁰ Luigi UGHI: *Dizionario storico degli uomini illustri ferraresi*, Tomo II, Ferrara, Eredi G. Rinaldi, 1804, 181. It should, moreover, be added that the Tassoni family – both in its Reggio and Ferrara branches – is no stranger to promoting banking activities. Ottavio Tassoni, in fact, figures among the founders of the *Banco di Santo Spirito* in Rome in 1604. (Luigi DE MATTEO: *Il Banco di Santo Spirito 1605–1992*, Roma, Edizioni del Banco di Santo Spirito, 1992).

The *Alitimonfo* is a completely original work. Although the structure of the abacus and accounting treatises is traceable in it in many ways, it distances itself from them due to its monographic and non-generalist character.³¹ The technical focus on monetary policy makes it unique, enriching a long history of monetary literature, which – albeit valuable and influential – remained defined by scholastic philosophy. While applying a traditional moral reflection to contingent facts, Scaruffi uses a technical language that is characterized by a form of disciplinary protoindependence, “starting from the functions of money and dealing with problems of coinage in a strongly metallist vein.”³² In fact, in the preface we read that

There is no doubt that men always cared about the right and the honest, although sometimes they let themselves be carried away dazzled by the usefulness and their own interest, so much so that despite many inconveniences that happen – every day for different reasons and in particular out of respect of gold and silver that boil down to Coins –, they would remain entirely correct. And because to most people in these times it seems that those two precious Metals are almost the ultimate goal, to which human thoughts are addressed [referring to worldly activities], and it is believed, indeed it is held for certain, that from correction, or from their agreement it would follow that the actions depending on them would be moderated and any caused abuse and disorder would be removed. Having been other times in the past, as well as those in the present, without a firm rule, or without universal order, in dispensing money [as it is evident], and for this reason they are influenced by it, and from all this so great disorders arise, in giving payments both in the same city or from one city to another, as well as from one province to another and they will arise more if not provided.³³

Although the rigorous prose of the preface may suggest a style typical of moral philosophy, the content takes a completely original direction from the very first pages, focusing on the mineral composition of metals, their strengths and weaknesses, the manufacturing processes, their shape and quantity, tariff rules and taxation norms, as well as weights and measures. The influence of the abacus tradition is clear.³⁴ The text is accompanied by tables with mathematical and commodity details, and the designs for proposed new coins are of excellent workmanship.

The coins would differ in weight, fineness, and metallic composition. The invitation to each state to harmonize the monetary circuit according to shared parameters would give rise to a system that would be not only universal but also lasting. This

³¹ See Oscar NUCCIO: “Gasparo Scaruffi: Un progetto di unificazione monetaria internazionale”. In Oscar Nuccio: *Il pensiero economico italiano*, Sassari, Gallizzi, 1992, 939–990.

³² Joseph A. SCHUMPETER: *History of Economic Analysis*, New York, Routledge, 1954, 278.

³³ Gasparo SCARUFFI: *L'Alitimonfo*, Ia (my translation).

³⁴ Enrico GAMBA – Vico MONTEBELLI: “La matematica abachista tra ricupero della tradizione e rinnovamento scientifico”. In I.V.S.L.A.: *Cultura, scienze e tecniche nella venezia del Cinquecento*, Venezia, Istituto Veneto di Scienze, Lettere e Arti, 1987, 169–202.

would avoid the ancestral problem of speculation caused by inappropriate alterations and consequent inflation of the prices of consumer goods. As Scaruffi himself states,

For the aforementioned reasons, it should be taken into consideration that, changing from time to time, for many reasons, the prices and values of these precious metals, it follows that many sorts of coins go from hand to hand, and then create other coins of the same alloys. And in doing them, new superfeatures are made enter in their values for which the Coins remain lighter and are then used with the values of the previous ones or even sometimes for higher values. And in using them in this way, it seems that goods and other things increase in price, all this proceeding many times from the decreased weight, or rather from the altered values of those coins. Sometimes it also happens that these coins are used in different places even though they are not in their first state. From here we really understand how necessary it is for money to be made only once and regulated under firm and certain orders, in which they must then be kept forever.³⁵

The term *superfeature* is not to be underestimated, not only as an addition to an independent scientific language but also for its monetary contextualization. A shared account base, in fact, would have guaranteed a fair exchange in the international balance of payments, because otherwise “Someone will be indebted for a quantity of scudi or lire, in Italian, Spanish, German or other coins; Not being able to have the same to pay the debt, he will be obliged to return to the creditor other Coins of the same quality, or similar, in which there is more than just as much pure, & up to weight as there was in the first ones; and this will be so easy to do [...]”³⁶

In addition, monetary stability would make the calculation of depreciation and related costs or profits less artificial, even over the long term. In order to achieve this, Scaruffi wrote, some common rules should be shared. By universal law, a single unit of monetary value and a single unit of weight should be adopted.³⁷ According to Scaruffi, the *imperial lira* – due to its already wide diffusion and ancient tradition – lent itself to being the main instrument on which to base subsequent subdivisions. It could be divided into 12 *soldi*, 240 *denarii*, or 480 *bagattini*. Thus, the following conversion rates emerge:

1 lira = 12 *soldi*
 1 soldo = 20 *denarii*
 1 denaro = 2 *bagattini*

³⁵ Gasparo SCARUFFI: *L'Alitinofo*, 40a (Chapter XXVI).

³⁶ Gasparo SCARUFFI: *L'Alitinofo*, 8b–9a (Chapter XIII).

³⁷ Giuseppe GIANNANTONJ: *Il “Vero lume” di Gasparo Scaruffi e la ricerca della moneta universale (secoli XVI–XVIII): L'alchimia monetaria di un finanziere italiano del Rinascimento*, Bologna, Compositori, 2000.

The unit of weight, on the other hand, would be based on the Bolognese pound equal to 12 ounces. In turn, the ounce was equivalent to 24 *denarii* and the *denaro* to 24 *grains*. The operation was completed by establishing the exchange between gold, silver, and copper, based on the proportion existing in nature between the corresponding quantities. Here Scaruffi offers, on the basis of his personal experience, a very precise and detailed table of correspondence. He said that, according to natural and divine law, each unit of gold corresponds to 12 of silver and 1440 of copper. He also attributed the value of 6 imperial liras to an ounce of silver. Based on this *weight-price-cost triad* it would have been possible to calculate the natural and legal value of an ounce of gold (equivalent to 72 liras) and an ounce of copper (equivalent to 5 cents of a lira).

To facilitate exchange operations, Scaruffi thought that it would be necessary to write at least three numbers on some coins, indicating: a) the accounting value in imperial lira, b) the alloy used in the composition according to the percentages of gold or silver and c) the number of pieces needed to reach one pound of weight. Adopting this *golden rule*,

Any occasion for dispute, which may arise, in dealing with Coins, both Gold and Silver, due to the variety of values given to them under different titles, will be removed. However, in counting them in terms of pure and fine, the corrupt ones will not be taken; proceeding all this in the form of one by twelve, and twelve by one as regards the weights, as well as evaluating the gold as equal to 7 imperial liras per ounce and the silver equal to 6 imperial liras.³⁸

For Scaruffi, this currency – legally and materially anchored to gold, silver (and copper) – plays the role of facilitator of daily exchanges due to its simple and universal nature. Being conceived as a convenient unit of both account and weight, people would have practical reasons to agree to use it. It would become the standard for transactions because it would not undergo (or be affected by) the fluctuations of noble minerals and would not radically affect the most vulnerable parts of the population.³⁹ The community, in fact, by supporting this *Pavilion of coins*, would stand as a public guarantor to verify their value:

All gold and silver coins will be known by any person – who can read and also by those who cannot – by practice for their right value, that will be showed and imprinted on them. [...] It will follow again, that the Golds and Silvers, both coined and not, will be negotiated with regulated orders and with *Founded Reason* which will be easily understood by all.⁴⁰

³⁸ Gasparo SCARUFFI: *L'Alitinofo*, 58a (Chapter XLVII).

³⁹ Arthur NUSSBAUM: "A note on the idea of world money". *Political Science Quarterly*, 3, 1949. 420–427.

⁴⁰ Gasparo SCARUFFI: *L'Alitinofo*, 60b (Chapter XLVII).

For copper coins, on the other hand, only two marks would be sufficient to indicate: a) the value and weight (in *bagattini*) and b) the number of units required to reach the weight of one ounce. Scaruffi also addressed the challenge of parallel circulations, according to the commonly perceived risks of what would come to be known as *Gersham's Law* (which had already been explained by Oresme, Gabriel Biel, and Copernicus).⁴¹ It would be necessary for the precious coins in circulation to be weighed and measured in order to estimate their purity and the proportion of the various metals they contained. Another possibility would be to re-melt all copper coins – of any origin and kind – or to evaluate them only by weight.

A paradigmatic proposal or a political chimera?

Scaruffi's reasoning did not stop at purely technical issues but went to the frontiers of the very concept of coinage.⁴² His reflection had two pillars: *the first* focused mainly on the nature of the material content, *the second* involved the legal implications. A universal currency must be sure to harmonize the metallic and nominal values. As long as fine metal and minted coin (according to precise and commonly accepted technical indications) have the same value, he said, private individuals should not be prohibited from freely possessing precious metals in all their forms (raw, worked or polished). This would allow them to make any payment based on specific weight. But this was complicated by the practice of including the mint's costs and interests in the *nominal value* of the currency.⁴³

The second pillar, therefore, outlines a radical criticism against any (additional) *production tax*, tariffs, or related costs to be obtained through the classic alteration of metal alloys. This opposition to any kind of imposed interest or seignorage was a bottom-up proposition addressed to the prince himself.⁴⁴ He would be the spokesperson and guarantor of a practice that would be as effective as it is efficient, giving life to a virtuous custom that would gradually extend to other states and their rulers. The conceptual novelty is that this reform would not be a centralistic political mandate, but rather the product of the experience of the markets, which need monetary certainty in order to avoid cyclical crises.

⁴¹ Although already partially announced by Aristophanes in a passage of *The Frogs*, Oresme defines its formulation about two centuries before Gersham, also anticipating a similar intuition expressed both in the monetary theories present in Gabriel Biel's *Collectorium circa quattuor libros Sententiarum* and in Copernicus' *Treatise on the Coinage*.

⁴² Marzio A. ROMANI: "Una alchimia monetaria alla metà del Cinquecento". *Economia e storia*, 1976/1. 5–26.

⁴³ "Although Scaruffi concedes that the prince may bear all or part of the expense of the mint, for the honor and glory of it, he thinks it would be preferable to collect payment from those who have the coining done." Arthur E. MONROE: *Monetary Theory before Adam Smith*, Kitchener, ON, Batoche, 2001, 40.

⁴⁴ This implies – according to Schumpeter – "a lot of fairly advanced theory" for that time. (Joseph A. SCHUMPETER: *op. cit.* 278).

In order to harmonize this decision on a continental level, *L'Alitimonfo* proposes a *Diet of Princes* – converging peacefully – under the (moral) authority of the pontiff or the emperor. Some critics believe that this formulation, present in Chapter XLV, is a subsequent addition to Scaruffi's original structure. However, he returns several times to the idea and insists on the need for a system of guarantees to ensure that the process of conversion moves towards the universal currency. A reference to a universal mint is found in the preface. The theme is hinted at as if it were a necessary evil.

A careful textual analysis reveals a certain ambivalence about the political role of the prince, which he seems to view as necessary but also dangerous. In this way the author proves to be a child of his time as well as part of a mercantile and financial aristocracy that – despite being in the midst of an international economic network – necessarily had to deal with the city and local power, its court and its ruler. This aspect is even more evident in other texts by Scaruffi. In fact, his letters note that monetary alterations can be real but also of a psychological nature, with the paradox that the fine metal coins of some cities or states in precarious economic conditions or political instability have *a priori* a lower value.⁴⁵

This idea is highlighted by the incontrovertible fact that – on the basis of arguments already expressed by Luca Pacioli – Scaruffi supports a fixed 1:12 ratio between gold and silver. According to Cossa, his general remedy is “the adoption of a unitary monetary system with double standard based upon nothing less than the *Plato's ratio of value* (12 to 1).”⁴⁶ Schumpeter is also somewhat critical of the “irrational faith in an invariable relation,” but instead seems to be positively surprised by the definition of money “as a stamped piece of metal [where] the stamp has only declaratory importance.”⁴⁷ Both of the eminent economists just quoted dwell on Scaruffi's supposed bimetallism, but in this regard a more in-depth analysis would be required.

From a careful reading of *L'Alitimonfo*, one notes instead the proposal of a sort of *trimetallic balance*, in which gold and silver are combined with a less noble metal (copper or bronze). Scaruffi states that “beyond gold and silver, values are three

⁴⁵ In his commentary on the *Alitimonfo*, Bernardino Pratisuoli tells the story that he visited Gasparo Scaruffi shortly before his death in 1584, and reports a private conversation in which Scaruffi allegedly said that “It is indeed part of the liberty of the princes to do as they like about the things in their power; but since money which is spent all the time now here and now there, belongs to the world, princes have no special authority over it: that is to command it to depart or to remain according to their will. Therefore, money is like the birds (of the air) which no prince can command, to depart or to remain in his city or realm, as they go to live where they find their best feeding grounds.” Bernardino PRATISUOLI: *Digressione sopra il discorso delle monete di Gasparo Scaruffi*, Scrittori Italiani Classici di Economia Politica, parte antica, vol. 294; English translation: Germano MAIFREDA: *From Oikonomia to Political Economy: Constructing Economic Knowledge from the Renaissance to the Scientific Revolution*, London, Routledge, 2016, 127.

⁴⁶ “The cost of minting should be paid partly by the State and partly by those who bring metal to be minted.” Luigi COSSA: *An Introduction to the Study of Political Economy*, London, McMillan, 1893, 173.

⁴⁷ Joseph A. SCHUMPETER: *op. cit.* 278.

different things; nevertheless they have to be one body.⁴⁸ Even though the mixed alloys – manufactured through the use of copper – “could not, by Arithmetical reason, accommodate the proportionate division,”⁴⁹ they are generally used “*per poter fare varie sorti di monete*.”⁵⁰

Concluding remarks

Andrea Balletti, in a valuable publication, expressed his doubts about the stylistic nature of *L'Alitinofo*. Without prejudice to the content and its authorship, it was the form that aroused his suspicions. He noted that there is an all too evident rhetorical diversity with slavish insertions in order to make the author's ideas “philosophically acceptable.” Through a literary *labor limae* there has been an effort to avoid the linguistic minimalism of commercial and banking circles. According to some scholars, Scaruffi's memoirs were adjusted and filtered with the canons of the cultured language of the time by the jurist Pier Giovanni Ancarani.⁵¹

This stylistic sensitivity is also evident in the *Instruction on the discourse of Gasparo Scaruffi to regulate the things of money* (published as an appendix to *L'Alitinofo*) by an author who calls himself *Il Prospero*,⁵² whose real identity is unknown, but who is most likely to be the notary Prospero Bisi.⁵³ According to Balletti, this work was seasoned with quotations from Plato, Cassiodorus, and Aristotle⁵⁴ in order to make it more attractive to the audience of learned society. This approach is consolidated in Bernardino Pratisuoli's *Considerations on Alitinofo* (published in 1604), designed to make Scaruffi's thought and proposal accessible to a not strictly technical public.⁵⁵

Pratisuoli's commentary has a dual function of (scholastic) clarification and support for Scaruffi's theses regarding the monetary unit. The work demonstrates a thorough knowledge of (official) culture and scholarship. It includes precise references, inspired especially by the legal thought of Diego de Covarrubia y Lleiva. This demonstrates a certain knowledge (albeit filtered) of the doctrines of the

⁴⁸ Gasparo SCARUFFI: *L'Alitinofo*, 20a (Chapter XXII).

⁴⁹ *Ibid.*

⁵⁰ *Ibid.* (“in order to make various kinds of coins”).

⁵¹ Andrea BALLETTI: *op. cit.*

⁵² IL PROSPERO: *Breve instruttione sopra il discorso fatto dal mag. m. Gasparo Scaruffi, per regolare le cose delli danari*, Reggio Emilia, Hercoliano Bartoli, 1582.

⁵³ Gaetano MELZI: *Dizionario di opere anonime e pseudonime di scrittori italiani o come che sia aventi relazione all'Italia*, I, Milano, Giacomo Pirola, 1848, 149. As already mentioned, Prospero Bisi was in charge of the printing of *L'Alitinofo*. It cannot be excluded that he is also the author who wrote a commentary on Scaruffi's work under the name Bernardino Pratisuoli.

⁵⁴ The only three classic authors present in *L'Alitinofo*.

⁵⁵ Bernardino PRATISUOLI: *Considerazioni del M.co M. Bernardino Pratisuoli regiano, sopra l'Alitinofo del S. Gasparo Scaruffi, nelle quali con chiarissime ragioni si tratta della cose delle monete*, Reggio Emilia, Fratelli Falvio et Flaminio Bartholi, 1604.

Salamanca School in the Emilian intellectual circles. The question that might arise to a historian is whether there was a mutual influence – at least indirectly – between the ideas of Scaruffi and those of the theologians of Salmantine provenance (especially Jesuits) on monetary issues.

Historically and symbolically, two answers – though partial – could open further fields of inquiry. First of all, it should not be ignored that the Venetian Jesuits had opened their own college in Reggio Emilia in 1571.⁵⁶ This would lead to not excluding even a mediated diffusion of Scaruffi’s work in the Jesuit communities. Another (partial) response can be found in a manuscript catalogue of the *Bibliotheca Major* of the Roman College,⁵⁷ currently at the National Central Library in Rome,⁵⁸ in which the presence of Pratisuoli’s commentary on Scaruffi’s work is confirmed. The copy belonged to the Jesuit Giovanni Battista Coccini (1570–1641),⁵⁹ Dean of the Auditors of the Apostolic Tribunal of the Roman Rota, who bequeathed his personal library to the Society of Jesus in 1640.⁶⁰

In any case, twenty years after the publication of *L’Alitimonfo*, the Jesuit Juan de Mariana published his famous *De Monetæ Mutatione* in 1609, after his apostolate in Messina and Rome. Both with his work on money and with *De Ponderibus et Mensuris* (*On the Weights and Measures*), Juan de Mariana enriches discussions of the commercial and actuarial disputes of his time. Although these themes were by no means extraneous to the theological domain, Mariana uses the more concise and direct language of the abacus tradition. He incorporates it into the style of the Late Scholastics with references to Greco-Roman, biblical, patristic, as well as canonistic and magisterial sources in order to construct the scholastically rational justifications of the postulates but presumably also to improve the chances that his treatise would be accepted by the political and ecclesiastical authorities.

In any case, *L’Alitimonfo* did not originate in university classrooms or in the courts. It was a mature fruit of experience in the field of commercial and banking practice.⁶¹ Taking for granted that “its importance, however, lays not in any systematic theoretical analysis but in its clear exposition of certain practical proposals [...]”

⁵⁶ David SALOMONI: “Le scuole di una comunità emiliana nel Rinascimento tra religione e politica: Il caso di Novellara”. *Educazione. Giornale di pedagogia critica*, V/2, 2016. 27.

⁵⁷ MS Ges. 882, Biblioteca Nazionale Centrale di Roma.

⁵⁸ With the capture of Rome and the unification of Italy, the Roman College had to leave its historic location. In 1873 its library was nationalized and the National Central Library of Rome originated from its collections.

⁵⁹ Domenico DE ZAULIS: *Annotationes decisivæ Johanne Baptistæ Coccini*, Roma, 1672.

⁶⁰ Margherita M. BRECCIA FRATADOCCHI: “La Biblioteca Major del Collegio Romano e i suoi antichi cataloghi”. In Marina Venier – Jean-Eudes Girot: *Homo in libri ac litterulis abditus: I libri di Marc Antoine Muret alla Biblioteca Nazionale Centrale di Roma*, Roma, Biblioteca Nazionale Centrale di Roma, 2013, 53, n. 14.

⁶¹ His experience at the *Banco di Agostino da Lodi* and direct contact with the specialised artisans working at the mint helped him learn established practices and commonly accepted theories on metallurgy and coin composition. These practical circumstances are also a way of delving into the cultural environment of the mint and assay workers of the time.

Scaruffi's merit lies in having advocated a stable monetary unit in terms of fine metal and having proposed international monetary unification."⁶² Nevertheless, the epistemological analysis of *L'Alitimonfo* offers three noteworthy perspectives. First of all, the extensive and structured use of an economic logic. The complexity of monetary relations is reduced through a series of cases and possible solutions, with a mathematical rigor supported by the precision of calculation, arithmetic operations, measurement, and graphic tables.

Secondly, the role of sectoral observation leads to a heuristic approach and a rigorous procedure in which a hypothesis follows the prediction of a result, which must then be validated in any case.⁶³ Thirdly, through this long-term process of investigation and verification, the richness of information allows for an independent disciplinary development aimed at resolving concrete cases of public interest and their anomalies. In this context, *L'Alitimonfo* is an essential text not only historically (and ethically) because of the originality of its proposal of a universal currency,⁶⁴ but also for the way it highlights the centrality of monetary policies and their consequences in local, national, and international economic circuits.

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⁶² Edwin R. A. SELIGMAN: "Gasparo Scaruffi". *Encyclopaedia of the Social Sciences*, vol. 13, New York, Macmillan, 1942, 561.

⁶³ Cf. Marco BIANCHINI: "Gasparo Scaruffi". In *Il Contributo italiano alla storia del Pensiero: Economia*, Roma, Istituto dell'Enciclopedia Italiana, 2012, 142–146.

⁶⁴ "As was to be expected, the princes did not even consider, much less adopt Scaruffi's projects. One cannot believe that an experienced craftsman such as Scaruffi [...] should have been unaware of the political obstacle which his project was bound to encounter. However, his system had a definite theoretical value quite apart from the question of its adoption in practice (actually some of his points were borne out later)." Arthur NUSSBAUM: *Money in the Law National and International: A Comparative Study in the Borderline of Law and Economics*, 2nd ed., Brooklyn, The Foundation Press, 1950, 549.

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Abstract

In a context of severe inflation and constant monetary alterations, Gasparo Scaruffi proposed a universal stable currency, based on the proportion existing in nature between the corresponding quantities of gold, silver, and a less noble metal (copper or bronze). In his L’Alitinonfo (1582) – whose title is a neologism resulting from the union of two ancient Greek words that together mean “true light” – Scaruffi explained a sort of moderate trimetallism in an articulated prose that demonstrates a close link with the abacus tradition and a not at all secondary alchemical knowledge. The primary focus on monetary policy makes L’Alitinonfo a completely original and unique work as well as a masterpiece in the history of economic theories.

Keywords: economic history, Renaissance and Italian studies, history of economic thought, Early Modern history, monetary theories

Rezümé

Igaz fény a sötétben: Gasparo Scaruffi 16. századi monetáris víziója

A súlyos infláció és az állandó pénzváltások közepette Gasparo Scaruffi olyan egyetemes, stabil fizetőeszközt javasolt, amely az arany, az ezüst és egy kevésbé nemes fém (réz vagy bronz) megfelelő mennyiségei között a természetben fennálló arányon alapul. L’Alitinonfo (1582) című művében – a neologizmus két ógörög szó egyesítéséből származik, amelyek együttesen „igaz fényt” jelentenek – Scaruffi egyfajta mérsékelt trimetallizmust fejtett ki tagolt prózában, amely szoros kapcsolatot mutat az abakusz hagyományával és az alkímiai tudással. A monetáris politikára való elsődleges összpontosítás teszi a L’Alitinonfót teljesen eredeti és egyedülálló művé, valamint a közgazdasági elméletek történetének remekművévé.

Kulcsszavak: gazdaságtörténet, reneszánsz és olasz tanulmányok, gazdasági gondolkodás története, kora újkori történelem, monetáris elméletek