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THE INTERNATIONAL MERCURY CARTEL,
1928-1949

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ABSTRACT

Mercury has been one of the most persistent cases in contemporary history of international market regulations and this in spite of its having been affected by important technological changes and the regular discovery of new deposits. This paper offers an approach to the least known period, although perhaps the one in which the greatest rises in process and production occurred as a consequence of market manipulation. The period coincides with a series of agreements between the Spanish and the Italian producers and the outcome was a worldwide cartel known as “Mercurio Europeo” which came into being in 1928. The aims of this work will, therefore, be first to describe the features of the various stages of development of the international mercury market during the first half of the twentieth century, with emphasis on the characteristics and conditioning factors in each period. Secondly, the objective is to analyze the various market agreements that came about, the effectiveness of the clauses therein, the construction of distribution networks and the influence that the increase in production had on other mines and on certain technological developments.

1. Introduction

Recent years have seen studies and research on cartels attracting wider numbers of scholars. The relevance of the subject is most probably proportional to the increasing difficulties of giving an answer to some of the questions connected with the functioning of the economic system. When even the «Financial Times», hardly the most radical enemy of the system devotes two series of articles – “Future of Capitalism” in 2009 and an even more explicit “Capitalism in crisis” in 2012 – in three years to the underlying causes of the economic and financial crisis, and its more general consequences, it is clear that there is room for a long series of questions about the rationality of this system, the best ways to reform it, and the possible varieties of responses to the reforms. Most of the answers put forward underline the need for a more rational and coordinated behavior of the market, suggesting that the invisible hand sometimes seems to be a mere accident of history, and not the rule. Divergences emerge when it comes to specifying which instruments and actors should drive and regulate the new, more rational behavior of the market, and the host of actors – the firms – interpreting this new economic script.

Already in the 1920s and 1930s, the wealth of literature on cartels was suggesting that they are a kind of pragmatic response to the misbehavior and/or imperfection in the allocation of the factors or in the information asymmetry concerning prices and markets. According to this interpretation, cartels are considered a sort of rational, albeit partial response introducing new asymmetries, but in a wider context, the imbalances existing in the market among firms. The defensive strategy approach implied in the introduction of the cartels did not diminish their effectiveness. It simply moved to a different level the most dramatic friction of any economic system, the conflict of interest existing between producers and consumers. In the 1920s and 1930s a large part of the public as well as governments saw the idea that the geometric sum between the gains in the social and economic stability of the system permitted by

the cartels among producers and the losses of consumer rights as positive. All institutional actors, both private and public, were called to contribute to this (supposedly positive) effect.

From the many possible examples offered by history, we select the mercury cartel, given the coincidence of all these actors, and their interconnection. The fact that the case study covers a period –from the 1920s to the 1950s, where governments were largely involved in the cartel not only as referees but also as players, and that the political and institutional regimes swung between democratic and authoritarian, merely adds extra relevance and complexity to the example, underlying, if necessary, that the need for social and economic stability in a sector, as well as at a more general level, has been a value that all kinds of governments, regardless of color or institutional framework, have shared¹.

Mercury has been one of the most persistent cases in contemporary history of international market regulations and this in spite of its having been affected by important technological changes and the regular discovery of new deposits. This paper offers an approach to the least known period, although perhaps the one in which the greatest rises in process and production occurred as a consequence of market manipulation. The period coincides with the twilight years of the Rothschild family’s control of Spanish mercury exports (until 1921), the beginning of the exclusive control of sales by the Board of Directors of the Almaden and Arrayanes Mines, and the acquisition of the former Austro-Hungarian mines by the second world Italian producer, Monte Amiata. This led to a series of agreements between the Spanish and the Italian producers, supported by their respective governments, and the outcome was a worldwide cartel known as “*Mercurio Europeo*” based in Lausanne, which came into being in 1928. Thanks to these agreements, the Almaden and the Italian mines (Monte Amiata, Siele and Idria) reached productions and were able to increase their prices internationally, hand in hand, leaving little incentives for outsiders². It is difficult to find a more evident example of

1 Liefmann, Robert (1932); Hexner, Ervin (1946); Schröter, Harm (1996); Salant, Stephen W. and Levenstein, Margaret C. (eds.) (2006); Fear, Jeffrey (2007).

2 On mercury market history see: Sánchez Molero (1856), Martín (1980), MacKie-Mason and Pindyck (1987), Chastagnaret (2000), Segreto (1991) and López-Morell (2008)

successful prize and quota cartel over such a long-term, taking into account a number of outsiders and the complexity of a commercial structure that would work at the international level³. In addition, in mining activities being in a position to maintain any long term cartel is more difficult for a small group of suppliers, because high prices and the extraordinary profits of the companies involved lead to more mines being opened and to the appearance of competition, unless there is a substantial difference in extraction marginal costs between one and another.

We have very good studies of cartels in copper (Herfindal); diamonds and uranium (Spar); copper (Herfindal); aluminum (Holloway); bromine (Levestein) and chrome (Phimister)⁴. However most were worked out using indirect sources. In our case we have enjoyed unprecedented sources, in particular the minutes of *MercurioEuropeo* deposited at the archives of the Fundación Almaden (Almaden Trust), as well as those of Monte Amiata company Archives (at the Mining Museum in Abbadia S. Salvatore), the IRI Historical Archives and the Finmeccanica Archives in Rome, the Rothschild Archives in London and the National Archives of the United States (Department of Commerce). The insight gained from access to the insider's view of the cartel management is one of the added values in this work.

Also noteworthy is the origin itself of the cartel as it was promoted and managed by the two public concerns; the state was the owner and the entrepreneur, some decades before the tendency in developed and non-developed countries to nationalize mining resources⁵. The Spanish government had an extraordinarily long experience in mining Almaden (from the XVI Century), but only from 1921, after almost a century having transferred their sales to intermediaries, like the Rothschilds, did the Treasury decide to take the control of all industrial and sale

3 For a general literature on cartels in business history see: Akira Kudo and T. Hara (eds.) (1992), Barjot (ed.) (1994), Jones (ed.) (1993), Fear (2007) and Levenstein and Suslow (2006), to mention but a few.

4 Other classical studies in international cartel in mining are: Elliot, May, Rowe, Skelton and Wallace (1937), Hezner (1946) and Great Britain Board of Trade (1976), between others.

5 Radetzki (1985).

processes. The Italian case was also connected with a state-owned company, Monte Amiata, the most important national producer and part of the Istituto per la Ricostruzione Industriale (IRI) from 1933 onwards, i.e. less than five years after the cartel was established.

The aims of this work will, therefore, be first to describe the features of the various stages of development of the international mercury market during the first half of the twentieth century, with emphasis on the characteristics and conditioning factors in each period. A second objective is to analyze the various market agreements that came about, the effectiveness of the clauses in these, the construction of distribution networks and the influence that the increase in production had on other mines and on certain technological developments.

2.-Background

Since ancient times, mercury had been associated with paint (vermilion), cosmetics and medicine, but it really came to the fore in the mid sixteenth century when it began to be used in the extraction of silver by amalgamation from the huge deposits in Peru and Mexico. Up to the end of the nineteenth century mercury was employed intensively in the Mexican silver mines and its demand would grow still more when it was discovered that it could also be used in industry for gold-plating, manufacturing physical instruments, paints and mirrors, turbine manufacture, which made use of its vapours, or as fulminating powder. Thus, it gradually ceased to be used as an amalgam.

The second feature of the mercury market lay in its scarce supply: the cinnabar from which it is extracted is rarely found in nature and is concentrated in very few mines around the planet, and it was this that gave producers a solid argument for imposing worldwide prices.

The largest and oldest deposits are in Almaden, in the Province of Ciudad Real, in Southern Spain, and so it was not difficult for the Span-

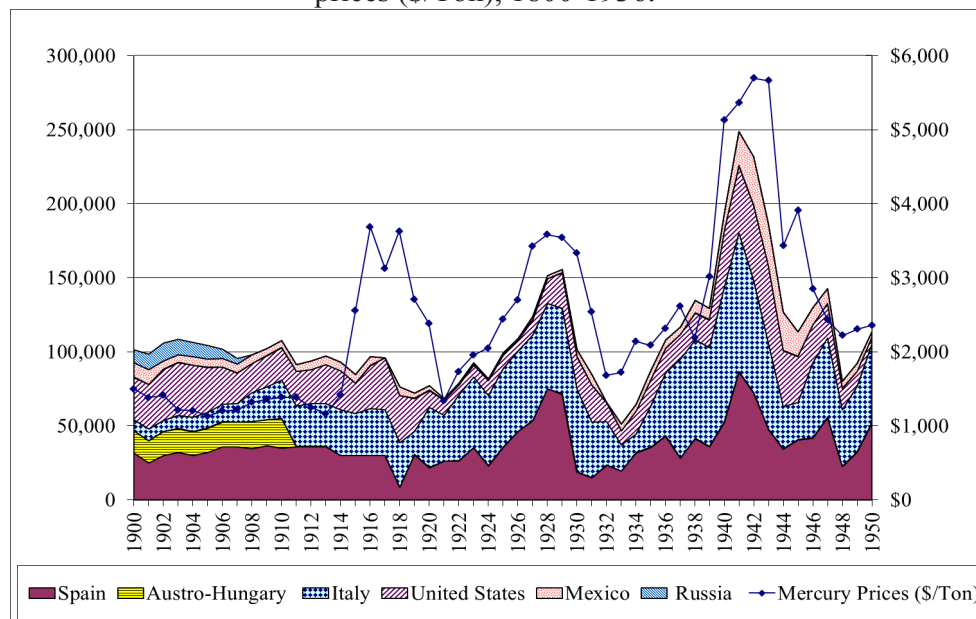
ish crown, the exclusive owner of the deposits from 1523, to take advantage of its monopoly and to fix an exclusive income on the product; in fact, all dealers since then have adhered to the Spanish measurement of production based on the traditional containers (flask) of 34.507 kg. of mercury⁶. The only competition to Almaden on the world market for the next three centuries came from the mines of Idria, located in present day Slovenia. However, the sovereignty of the Austrian monarchs over the deposits made it easy to reach an agreement for the exclusive sale of surpluses to the Spanish crown. So it was that, barring a few isolated years in the eighteenth century, the Idria mercury did not compete with Spanish mercury.

This balance of power, an effective duopoly which was strengthened by the Rothschild family, who had control of the Almaden sales from 1830, finished in 1847 with the discovery of the New Almaden seam, followed in the ensuing years by others such as New Idria (1854), Redington (1861) and Sul-

phur Bank (1873), all in California, and some other lesser ones in the state of Colorado. For well over a decade the USA easily outstripped Spain as leading world producer and, even though most of the production was for domestic consumption, the existence of the Californian mercury upset the market and led to drastic falls in prices.

With the arrival of the twentieth century, and especially with the opening of Monte Amiata (1897), Italy appeared on the international stage and became a point a reference. The conditions of production in Italy were completely different. While in Spain the technological requirements were lower, and for a long time, till the 1920's, the company was run actually without a formal industrial accountancy, with the Spanish central administration offering the financial support for any activity, in Italy the presence of mercury at the surface was just episodic. The entrance to the mines was at a height of some 900 meters and mining the metal required very modern and efficient

Graph 1: Accumulated production by countries of mercury in flasks; prices (\$/Ton), 1800-1936.



Source: Schmitz, C. J. (1979).

Note: there are no figures for the Austro-Hungary production (Idria mines) from 1911 to 1919

⁶ Although the mercury figures are universal there is a slight deviation with the North American production, where flasks are marginally smaller. Specifically, their flasks weighed 76 pounds while the Spanish ones were 34.5 Kg, equivalent to 76.0582 pounds (75 Spanish pounds).

methods, which was profitable, despite the lower percentage of metal in the rocks. The main company, Monte Amiata (named after the mountain where the mines were located in the South of Tuscany) was set up in the late 1890's by German investors who intro-

duced the best available technologies, both for mining the mineral and for its industrial transformation.

Italian and Spanish producers were formal competitors, but since their markets were geographically apart (the Italian mercury was sold through some German big brokers, Metallgesellschaft and Hirsch company, and was exported mainly to that area), for a long time they coexisted without interfering in each other's main markets. The first important and positive contact between the two big producers was during WW1. They reached an agreement, under the supervision of the British Government, that led to an entente between the Rothschilds and the Spanish and Italian Governments, with the former selling their mercury in London during the war at a ratio of one Italian flask per two Spanish flasks, and at a considerably inflated price, which rose from £7 per flask in 1914 to £24 in 1918, while in the same years in New York it went from \$48.31 to \$123.47⁷.

In 1921 the Spanish Government decided not to renew its agreement with the Rothschilds but to directly organize sales through Board of the Minas de Almaden y Arrayanes. The Board was suddenly faced with the task of selling all the production, something it had been delegating to the Treasury for the last 55 years. The challenge seemed clear, since although the Rothschild withdrew completely from the operations, the remaining intermediaries, led by Alexander Pickering, the most important mercury broker in London, put pressure on the board to lower prices so that they would have more leeway to speculate on the markets. The board set up a fixed price system at 10.5 pounds the flask. While this did not give any net profit to the Spanish Treasury in 1922, it did convince the Spanish Government that things were going in the right direction, and official prices were raised to 12 pounds the flask, a price which held until the end of 1925⁸.

Meanwhile, in Italy, as a result of the political and military effects of WW1, Monte Amiata com-

pany passed into the control of the most important Italian bank, the Banca Commerciale Italiana. The second consequence effect of the end of the war was the incorporation into the Italian Kingdom of a small part of the Austria-Hungarian territory, including the area where the Idria mines were located. These mines passed directly into state administration control. Following the successful war experience, the Italian Government tried to reach an initial agreement for joint control of the international market, but this did not materialize⁹. The Italians even sought, unsuccessfully, to make a direct agreement with the Rothschilds in 1920, when prices started to plummet (in spite of a reduction in world production to barely 75,500 flasks) due largely to Italy, which was putting its mercury on the market below the official prices¹⁰.

Some months later, when the Almaden mercury sales were firmly controlled by the Spanish Government, the new director of Monte Amiata, Riccardo Salvadori, appointed by the new owners, the Banca Commerciale, went to Madrid with a proposal to share out the market (estimated at some 100,000 flasks per year) at a ratio of 60,000 flasks for Italy and 40,000 for Spain. There was to be a single sales office at a time of extreme weakness in the Almaden production. Once again, no agreement was forthcoming. So Almaden continued with its system of sales until 1925, when it decided to sell almost its entire production by open auction¹¹. This was not attended by the usual intermediaries like the Rothschilds or Pickering, although the Sociedad Española del Mercurio, created for the purpose by the Banco Español de Crédito and comprising Lazard Brothers

9 During spring 1919 there were many high level meetings in Madrid to see if an agreement about the market could be reached, but now it was the Italians who would not go ahead with the Spanish proposals. Zarraluqui (1934), p. 748-749.

10 Report of the meeting of 19-4-1920 and Letter from the Rothschilds to Alfredo Bauer (Madrid), dated 15-7-1921. Rothschild Archives, London (hereinafter RAL), XI-111-151.

11 Almaden had taken the decision in 1922 to sell through resellers, who were paid bonuses on the basis of sales increase and who had freedom to set prices. The system slowly fell apart since many of these brokers brought down their prices in order to sell more, and in doing so reduced the profits from sales tremendously. ME, Grupo Español, Vol.6, session 30-8-1941.

7 López-Morell (2008); ASIRI, Serie Rossa.

8 Ibid.

and other French banks were present¹². The agreements with the Sociedad Española del Mercurio, which purchased 45,000 and 50,000 flasks at 14 and 17 pounds, respectively, in 1926 and 1927, proved highly profitable for the Spanish Treasury, which collected 44,737,992.56 pesetas. (\$7,634,469.72 or £1,569,203.53) in those two years from these and other, lesser, sales¹³; which was the highest profit ever obtained to date for the Almaden, more even than under the Rothschilds.

3.-A bad start, 1928-1932

The Italians did not give up in their attempts to convince Spain of the need for an agreement¹⁴, especially when there was spectacular increase in the Almaden production, which rose from 26,220 to 75,000 flasks between 1921 and 1927, with sales jumping from 19,507 in 1921 to 61,885 flasks in 1926¹⁵.

Apparently Almaden was now in a better negotiating position for any agreement, while its seams continued to be the richest in the world at the time,

12 García Ruiz, J. L. (2002). The Banca Commerciale Italiana, the main shareholder in Monte Amiata, would take a share, Segreto (1991), p. 86.

13 Zarraluqui (1932), p. 741 and 798

14 There were even attempts by third parties to foster an agreement between Spain and Italy. One example was the Hamburg house of Hugo Falck & Co, which on July 1, 1926 consulted the Rothschilds, through Kuhn, Loeb & Co, of New York, about setting up a syndicate to negotiate an agreement with the two governments. The London Rothschilds replied to Kuhn, Loeb & Co. on September 21, informing them along the lines of the following: interest in combining Spanish and Italian interests is obvious, yet very difficult in practice as both countries are highly jealous of each other; although the plan has been put forward again and again, nothing has ever come of it. There have been talks about this matter in Spain recently, and a proposal exists to set up a Spanish company to rent the Almaden mines. Should it go ahead it will have to include the Italians. For the moment, we do not believe that the proposal in this letter can prosper. We have been constantly informed of the matter and we were the sole Spanish Government sales agent for many years. Our friends in Spain have already enquired as to whether we would participate in this Spanish company were it to be set up. In such a case, you will understand that we are averse to taking any other initiative. RAL XI-111-247.

15 Zarraluqui (1932), p. 800. According to some sources in 1926 Spanish mines sold only 46,000 flasks.

with a richness of 6-8%, and a wealth of reserves¹⁶. Furthermore, the first effects of technological reforms undertaken in the 1920s meant its operating costs (3 pounds and 10 shillings the flask) were much lower than those of other mercury mines in the world, including the Italian ones, which were more dispersed with a grade ore of around 2% (between one fourth and one tenth of the Spanish one, depending on the years), which meant that the cost was between 7 and 10 pounds the flask.¹⁷

However, the possibility that agreement with the Italian mines could increase profits even more at a time when market prices in London stood around £21-22 in 1927-28 and in New York at between 117 and 123\$ the flask of mercury; and the perspectives were for these prices to hold over the medium term. So the Spanish Government decided to go ahead, given the increasing margins being obtained with its mercury by the Sociedad Española del Mercurio and other brokers. The market evaluation of the Spanish government was not confirmed by the real trends. After 1925 both Italian producer and Almadén sold far fewer flasks, because the biggest mercury consumers were bidding on the price reduction, on the basis of rumors spread by speculators. Despite the critical situation, their production strategy was different. While Monte Amiata decided to reduce production, the Spanish mines continued to increase it.

The more rational and entrepreneurial approach to the situation of international market shown

16 A report stated that in 1926 the mineral to be extracted without any big effort was for 600,000 flask, while the mines could work for another couple of centuries (Cfr. Archivio centrale dello Stato, ASIRI, serie Rossa, b. 520, Mercurio Europeo, Considerazioni sull'esercizio 1930).

17 This was possible in any case thanks to very low wages, which compensated inefficiencies, and a very traditional organization of labor. The North American seams were way behind (never exceeding 0.37%) According to experts, these mines were always considered marginal from the economic point of view, whose activity could be developed only when international prices were extremely high, to compensate the structural inefficiencies of these mines, as was the case during the wars or during particular periods, as in the 1920's, when demand and/or speculative behavior by big metal traders pushed up the prices. Report on the Mercury situation of 10-12-1929 from A. Pickering to the Rothschilds, RAL XI-111-427 and United States Tariff Commission (Mercury). Washington, 1944, p. 3-4.

by the Italian producers gained support during the negotiations that started in early 1928 in Madrid. The stocks in Almadén reached 50,000 flasks, and among the Italian producers 24,800 (14,000 at the Monte Amiata, 7,000 in Idria and 3,800 at the Stabilimento Minerario del Siele, the second biggest producer in the Monte Amiata area). The highly probable sale of the stocks by the speculators, would have led to a new increase in sales by the producers, but this new situation would have been used to rationalize the market through an agreement between the main producers to harmonize production and keep prices under control¹⁸

The provisional was agreement signed in Madrid on April 28, 1928 between the chairman of the Minas de Almadén, Admiral Antonio del Castillo and the CEO of Monte Amiata, Riccardo Salvadori, who was acting also on behalf of the Siele company and Idria mines, owned by the Italian state. The supervision of the business negotiations by the Spanish Treasury minister, Calvo Sotelo, and the Italian ambassador in Spain, gave the agreement stronger importance in all aspects.

For the agreement, which was valid only for the mineral and the liquid mercury and only for the flasks sold on the international market (the domestic markets of both groups were excluded from the entente) a single body was set up for the sales of the mercury produced by the associated mines. It was to establish both the level of production and sell the production at a ratio of 55% for Spain and 45% for Italy¹⁹ during the first three years of the agreement. In the following three years, and for a further four if the agreement was extended, the figure was to be 40% for Italy and 60% for Spain. In short, the sales cartel would last six years, with a four-year extension unless one of its members advised of its withdrawal with one year's notice. The sales price would be determined by the committee, which could alter it as it saw fit on the basis of market circumstances or for other justified reasons. The price was always

to be fixed at the port of exit or at the border of the countries, since shipping costs from the mines to the point of export were to be borne exclusively by each producer²⁰.

The final agreement was ratified in Madrid on September 9, 1928, and the only modifications of importance were the inclusion in the cartel of the Società Mercurifera Italiana, also represented by Riccardo Salvadori, and the decision to call the cartel Mercurio Europeo (hereinafter ME). The cartel was to commence on October 1, 1928 and, for greater effectiveness, both groups were bound not to perform any sales operations with delivery dates after that date. There were a few other minor issues, such as the right of each group to change its ports of departure, after advising thereof, and a final clause, number 17, affirming that "the contract shall be deemed terminated at any moment in which either Italy or Spain becomes involved in a war, other than one relating to their colonies.", although, as we shall see, this clause was never used to practical effect²¹.

The consumption in the mercury market was stable since many years, despite some evident irregular movements in any single year, around 100-110,000 flasks per year. In all industrial sectors where the metal was used, its presence was so low that its price could not really influence the final

20 The office of the cartel was to be situated in a neutral country, Switzerland, in Lausanne. It would be financed by 1% of the sales. The office was to be administered by the Management Committee, which would comprise a maximum of ten members, five from each group. The committee would have a chairman and vice-chairman, who would serve for one year and would rotate on a yearly basis between the two groups. In order to avoid any transgressions of these commitments, each group was to declare the points of export for the mercury production, which in Spain would be the ports of Seville and Alicante and for Italy those of Genoa, Livorno and Trieste, although, giving due advice, changes could be made during the course of the agreement. On a quarterly basis, each group was to send to the Lausanne office a customs certificate detailing the mercury exports made. Non fulfillment of the agreement would be sanctioned by a fine equivalent to ten times the sale value of each flask at the time of infraction, with the amount to be paid into the account of the other party

21 Almadén Foundation Archives (hereinafter AFA) R-15/513, ME Managing Committee minutes, Volume 1, Session 29-9-1928.

18 Minutes of the Monte Amiata Board of Directors, 14.1.1928; 3.2.1928.

19 The Italian share was distributed as follows: Monte Amiata, 51.03%, Idria, 25.67% and Siele 23.3%.

price of the product it was called to co-produce. The two member groups of the cartel adopted the same strategy in the months before the enforcement of the new regulatory institution: they preferred to eliminate all the stocks, selling all the flasks they had in their stocks to speculators, and particularly to Lazard Bros., which in the two months before October 1^o 1928 bought more than 88,000 flasks. In total, big sellers and speculators accounted for at least 100,000 flasks, i.e. the equivalent of one year consumption. In fact Spanish and Italian members of ME wanted to start the activity of the cartel without any flasks in their deposits because they were sought to take full advantage of the new situation. The general effect of that decision was mixed. On the one hand the members of the cartel offered the big speculators the weapon to undermine the effectiveness of their agreement, because with such an amount of flasks at its disposal it would have been difficult to sell any other flask through ME for about one year. On the other hand Lazard and other big sellers poisoned the information, amplifying the danger of an increase of prices because of the existence of the production cartel, so inducing big consumers to bring forward their purchases²². But *de facto* the cartel was to start its activities by reinforcing its main aim, which was to eliminate overproduction, the only way to avoid a crisis which could be lethal for any of its members.

The first Board Meeting of the Mercurio Europeo Managing Committee, that was held on September 26, 1928²³, at the offices of the Bank of Spain in Paris, was faced with this very difficult situation²⁴.

22 Minutes of the Monte Amiata Board of Director, meeting of 6.11.1928.

23 Ibid. Committee meetings were held every three months at a different office and lasted four or five days. There were many periods when the meetings alternated between the offices of Almaden in Madrid and those of Amiata in Rome, although many were also held in Paris before 1936 at the offices of the Banque Française et Italienne pour L'Amérique du Sud and Roura & Forgas, both in Paris. During the Second World War they were held in Switzerland.

24 On the part of the Spanish group it was attended by Antonio del Castillo Romero, Chairman of the Board of Directors of the Minas de Almaden y Arrayanes; Juan Rossell y Magaz; Julio Zarraluqui y Martínez, head of administration at Almaden; and Felipe Gómez-Acebo y Echevarría and Jesús Marañón Zorrilla. The Italian delegation included Louis Cordella, representative of the Italian Ministry for National Economy; Emanuele Ricci, for the Idria mines; Isaac Ros-

The difficult situation did not leave many alternatives to ME. It could fight against the speculators, who were selling their flasks at 5% less than ME, but the situation might last for at least 8-9 months (the time necessary for speculators to sell all their flasks), with the risk of worsening even more the economic and social situation in both Italy and Spain; or to find a compromise, in order to minimize the sacrifices, which was Salvadori's initial recommendation. In conclusion, he proposed a price per flask of 21.15 pounds sterling, with the idea of avoiding a fight against the speculators, while considering, too, that mercury had been selling in London at over £22 for some months. Nevertheless, he qualified this by stating that it was necessary to establish special criteria for the USA given the possibility for important exports there in the future because of the development of a mercury steam boiler by General Electric. The committee fully backed his arguments, insisting on the importance of promoting the image that the cartel had not been set up to increase sales prices but to regulate the market and avoid competition between mines and the negative effects of speculation²⁵.

The partners set to immediately. The Spanish group sent letters to its main customers and published

selli-Tedesco, CEO of the Stabilimento Minerario del Sile; Gino Luzzatti, one of the directors of Monte Amiata, and the CEO of the same company, Riccardo Salvadori, who served as the chairman in the early years, in rotation with the head of Almaden at the time. From the outset, the Italians asked for the first chairmanship, and it was decided that the chairman would be Salvadori, "for his proven efficiency of in managing current issues". The vice-chairmanship went to del Castillo and at the same time an executive committee was approved consisting of four members: del Castillo, Zarraluqui, Salvadori and Ricci. There were practically no changes to these initial ten members during the years the cartel lasted, with the exceptions of the directors of Almaden, who succeeded each other in the following order: Castilla (1928-1930), José de Lara (1930-1931), Alfredo de Zabala (1931), Enrique de Francisco (1932-1933), Enrique Conde (1934-1936), Mariano Arenas (1936), Mariano Ginovéz (1936) Marino Saiz (1936-1939?), Jesús Marañón (1939-1944) and Manuel Ocharán (1945-1961). Zarraluqui retired in 1931 and was replaced by the engineer Machimbarrena, ME president in 1933. On the Italian side Fagioli replaced Salvadori in 1933, and he was replaced in 1943 by Giovanni Malvezzi, until the end the cartel. Cordella, Montagna and Rossel were the secretaries of the board.

25 ME Managing Committee minutes, Volume 1, Session 29.9.1928.

an announcement in the specialist media to the effect that any future purchase was to be made through the ME office in Lausanne. This did not, however, prevent the members of the new cartel receiving individual requests from the brokers (or “speculators”, according to the members of the cartel) for mercury²⁶.

The authoritative tone of the ME directors was upheld during the early months of the cartel, despite the plummeting sales - Octobre 1928, 2,384 flasks; November, 1,269 and just 226 in December. Even so, Salvadori's report on the first three months of the cartel set off no alarm bells. Indeed, he confirmed that all European production was in the hands of ME bar the tiny production of a few residual mines, in Italy, which came to some 2,000 flasks a year. Even the low (but growing) level of the Italian outsiders' production was a danger for Monte Amiata, because the Spanish partner could accuse the Italians of harming relations with the Almaden, so putting at risk the general agreement²⁷. In short, in the following years no nation was going to suppose a threat competition-wise in Europe, and ME would continue to supply 50% of the world's needs. There is no question of the leading role of ME in the markets²⁸. North American production grew because the price was high, but it could not meet internal consumption demands, so the country continued to draw on European imports²⁹. The committee assumed that in

those months it would have to pay for the excess production of the two previous years. This excess (some 50,000 flasks, at a sales price of around 19 pounds) was in the hands of British and German speculators, sustained by Lazard Brothers (“très connu comme un spéculateur hazardeux”). If normality was to return, this stock had to disappear³⁰.

Salvadori put forward two options: to negotiate with Lazard Brothers³¹ or to lower prices to 19 pounds or less over a long period, although he again showed himself in favor of maintaining the approved price, as dropping the price to 19 pounds would allow speculators to buy up stock and prolong their maneuverings. He reckoned that the pressure from the speculators would last through till end of March or beginning of April. Information at disposal said that speculators were almost finishing their stocks a25,000 flasks, even though only 4,000 were assured³².

Once again, however, the chairman's expectations were over optimistic. Sales until May continued very low and the cartel had sold just 1/5 of what it had forecast. Meanwhile, stocks continued to accumulate in the associated mines (see table 1), until they stood at 63,420, including three months of reserve production. As a consequence, the total market stock would have been around 83,000 flasks, and with a growth rate that would take it to 100,000 by the end of the year. The long-expected, but unconfirmed, extraordinary purchase for the General Electric experimental steam boilers was not forthcoming. Without that order, the sales for the year would bare-

p. 12. Although the growth was a future threat, the American experts consulted did not foresee large growth. Of more concern were the doubts of General Electric and Sun Oil Co. of Philadelphia about going ahead with its steam boilers since the high prices made it unviable.

30 AFA, R-15/513, ME Managing Committee minutes, Volume 1, Session 5-febr-1929.

31 Actually, to continue negotiations, since in the previous months there had been a failed proposal from ME to push out the stocks. The German speculators had threatened to drop the price to £18-£19 if there was no agreement.

32 A reduction on exceptional sales to well known industrial businesses was not discarded. Specifically, there was a proposal for a reduction of 5 shillings to some customers, on condition that they did not make this public.

26 The Spanish ME Committee noted in its meeting of October 29, 1928 of a request for a price for 10,000 flasks from the Canthal house, from its office in Cartagena. The committee wrote back to reject the operation. AFA, R-15/522, ME Spanish Group, Volume 1.

27 In 1928 all Italian producers sold 61,200 flasks, 1929 21,800, and in 1930 23,000, but the companies outside the consortium sold in the same year 1,000, 1,200 and 3,500 flasks (Cfr. ASIRI, serie rossa, allegato 2)

28 AFA, R-15/513, ME Managing Committee minutes, Volume 1, Session 5-febr-1929. The inexistence of the mine that Pickering had been making believe he controlled for years with an apparent production of 50,000 flasks is confirmed. There is an insistence that the mercury substitutes on the market (which appear because of the high prices) do not yet suppose a threat.

29 From the tariff of 1920 (ratified in 1930) mercury imported into the USA paid a duty of 25 cents on the pound which translated into an overpricing of 19 dollars per flask, which the European mercury had to contend with to compete with the North American mercury. Tariff Commission (1944),

Table 1: The stock situation of the ME associated mines in May 1929.

	Unsold	3 month reserves	Total
Almaden	24,000	11,000	35000
Monte Amiata	9,750	4,455	14.205
Idria	4,750	2,250	700
Siele	4,400	2,025	6,425
Mercurifera	520	270	790
TOTALS	43,420	20,000	63,420

Source: AFA, R-15/513, ME Managing Committee minutes, Volume 1, Sessions 22-26 May 1929.

ly top 20.000 flasks.

In the end, faced with the possibility that it all been a case of sales mismanagement by the Lausanne office, ME was forced to reconvert its main purchasers in each country into commission agents, an option that obviously appealed to the latter greatly. The first four to take up the new role that summer of 1929 were Mitsubishi, Leghorn Trading Co., Roura & Forgas and Hirsch & Sohn. From these the list grew until it covered almost all the potential markets.

The representatives progressively signed individual contracts of one year duration (January to December). All were under the same conditions except that of the English representative (Roura & Forges) who acted as a seller for ME, but sold independently, while the others were brokers for the public. In any case, all the representatives could not sell mercury other than that of ME and at the price stipulated by ME³³. At the same time, the ME was entitled to sell directly anywhere in the world but at the same price as its representatives. If for any reason the cartel were to put up its prices, it would compensate its representatives through the difference. The general sales commission was ½% for all on the price, in the case of sales managed by ME, with the exception of the USA, where there was no commission, and the Belgians and the Germans, who were to receive 1%. When sales were managed by the representatives the figure rose to 1%, except for Japan and Belgium, where it was to be 1.25% and 2% respectively. There were also minimum annual targets to be met. The German representa-

tives were committed to selling 6,200 flasks, plus the sales of Fikesstcher; in England it was 6,000; India 750; Belgium 150. The others, however, did not have an explicit commitment. In any case, the represents imposed on their customers the condition that they would not re-sell the mercury or, at least, not re-export it³⁴. As a further strategy to encourage sales, ME decided to offer its buyers a 1% discount when sales exceeded 500 flasks; 1,5% when the figure topped 750 flasks and un 2% if they bought over 1,000 flasks³⁵. In early 1930 they also launched a special prize (value 500,000 lira) for the researcher who suggested ways to increase the consumption of mercury on a regular bases³⁶.

The situation did not improve and with the exception of a few months between summer 1929 and spring 1930, sales remained relatively very low (see graph 2)³⁷. In the first 27 months of ME's life

34 Again the exception considered is the sales contracts for the steam boilers and for other new applications of mercury. AFA, R-15/513, ME Managing Committee minutes, Vol. 1, October 7, 1929 and Vol. 2 (R-15/514), May 12, 1931.

35 AFA, R-15/513, ME Managing Committee minutes, Vol. 1, February 20, 1929

36 ACS, ASIRI, Serie Rossa, b. 520, mercurio Europeo, Sindacato Italo-Spagnolo "Mercurio Europeo", note of the Ufficio Studi of the Banca Commerciale Italiana, February 1930.

37 Meanwhile, Pickering informed the Rothschild at the end of 1929 about the seriousness of the situation. According to his information the official mercury prices of mercury in effect (21 pounds, 5 shillings) were pure fiction and should, in his opinion, be around 7 pounds. The reasons were clear for the broker: there was an unsold stock of 130,000 flasks, of which 80,000 were Spanish and 50,000 Italian. Then there were a further 15,000 to 20.000 flasks in the hands of intermediaries. World production was estimated at 150,000 flasks, but sales had fallen to just 100,000 flasks. The response of the producers was, on top of everything else, contradictory, since the California production was being increased, as was that of Idria. Therefore, all the mines were increasing their unsold

33 Representatives could buy for their stock and sell later (with a limit of 1,000 flasks in the USA).

Table 2: List of Mercurio Europeo representatives/Commissionist, 1931.

	Area of Sales	Commission	Minimum sale guaranteed
Société Anonyme Française Mithsubishi	Japon and China	½% sales from ME 2% Own sales	None
Leghorm Trading Co. (New York)	United States and Canada	0	None
Julio Cesar Murgi (Buenos Aires)	Argentine	½% sales from ME 1% Own sales	None
Comtoir des Scories et des Produits Chimiques (Anvers)	Belgium, Holland and Luxemburg	1% sales from ME 1.25% Own sales	150flasks
René Weill (Paris)	France and its colonies	½% sales from ME 1% Own sales	None
Volkart Brothers (Wintertbux)	India and Persian Gulf harbors	½% sales from ME 1% Own sales	750flasks
Société Santos Mendoça Ltda. (Lisbon)	Portugal	½% sales from ME 1% Own sales	None
Roura & Forgas (London)	United Kingdom, its dominions and, Australia, South Africa, New Zealand and the Guyana	½% sales from ME 1% Own sales	6,000 flasks
Skandinaviska Main & Metallak Tiebolaget (Stockholm)	Sweden and Norway	½% sales from ME 1% Own sales	None
Société Anonyme des Metaux et Minerais (Zurich)	Switzerland	½% sales from ME 1% Own sales	None
Aron Hirsch & Sohn (Berlin)	Germany, Austria and Hungary	1% sales from ME 1% Own sales	6,000 flasks*

Source: AFA, R-15/513, ME Managing Committee minutes, Vol. 1, October 7, 1929 and Vol. 2 (R-15/514), May 12, 1931.

*plus the sales of Fikesstcher

(October 1920-december 1930) world consumption was 267,000 flasks, i.e. something less than 110,500 per year, only a small proportion inferior to the normal level. The chairman of ME, Salvadori, was also perfectly aware that it was impossible to sell the same production twice. With the decision taken by all the producers before the beginning of ME's activities and with a relatively stable world consumption, it made no sense to be surprised about the low

stocks. In this situation, Almaden should have been the most favored of the mines with its production cost of just 3 pounds 10 shillings the flask, as opposed to the 7 to 10 pounds per flask of the Italian mines. Report on the state of mercury of 10-12-1929, RAL XI-111-427.

level of sales³⁸. Only the good relations established over the years with the Spanish government could limit the damages. In fact, the Italians recognized the very coherent conduct of their allies, who in 1930 resisted the calls of Lazard Brother in London, which offered £100,000 million to sustain the exchange rate of the Spanish peseta on the international market in return for having the entire Almaden production at its disposal³⁹. But the reciprocal trust of the cartel's members was not enough. Their mines produced dur-

38 ACS, ASIRI, SerieRossa, b. 520, MercurioEuropeo, Report on year 1930.

39 Ibid, Salvadori to J. Toeplitz, CEO of BancaCommerciale, 28.6.1930.

ing those years even more than in normal times. But these were no longer normal times. In late 1930 the ME directors recognized for the first time that it was not a problem of stock or speculation, but of a slump in industrial demand brought about by a general crisis that was incompatible with prices of the cartel. In 1929 and in 1930 sales remained below 75,000, 50% of the level of 1928 and, even more importantly, 25% below the consumption average. In particular, one of the largest markets, the American one, was showing a spectacular decrease: only 1,200 flasks had been sold in the USA, compared to the 11,356 in 1929. Yet the committee opted to maintain the official price at £21.15.0, preferring other more readily available solutions such as obliging the representatives to sell a guaranteed minimum, preventing competition from Spanish and Italian producers or providing annual contracts to its customers⁴⁰.

That June ME managed to exceed for the second time its desired quota of 7,500 flasks per month, although the figure fell again in the following months. The cartel closed its third year with losses, never having reached the 80,000 flasks per year it had envisaged (3,879 flasks in the last quarter of 1928; 40,138 in 1929; 33,843 in 1930; and just 24,013 in 1931). Financially, 1928-1929, and 1930 were not so bad, with figures of \$4,089,935.85 and \$3,487,214.90, and at a price of 21 pounds the flask, when Almaden had sold its total production between 1927 and 1928 at 17 pounds to the Sociedad Española del Mercurio. But 1931 closed with just \$1,711,468.55, which threatened not just the viability of the Italian mines but also that of the Spanish deposits

It was only in May 1931, when the Lausanne office was on the verge of collapse, that the Committee, met with the sales manager of ME, Minerbi, who explained the bad sales situation. On being asked for a realistic market price, he proposed a reduction to at least £17 the flask. The Committee enquired how much such a reduction would stimulate sales, to which Minerbi replied that he did not believe that there would be any significant increase

given the industrial crisis, but that he believed that it was fundamental to hinder the efforts of the outsiders. On the basis of these exchanges the ME decided on May 12 to reduce the price of the flask of mercury to £16.15.0., as of June 1, 1931⁴¹. It was agreed that the office should have elasticity regarding sales, with a minimum set at 15 pounds⁴².

Nevertheless, one of the most worrying elements was the increase in production in the USA, where the high prices were encouraging new mines to be opened (from a few tens the end of the 1920's they were almost 50 in early 1931, but went down to 38 at the end of that year) and a slump in exports, despite significant exports in 1931 (See Graoh 3). The same was happening in the other outsider mines in Mexico and Italy. The only way to eliminate these producers would have been reduce the price to £12, which would have provoked too many problems for the members of the cartel, because especially for the Italian group such a price could not compensate the higher costs of productions⁴³.

4.- Change in strategy: single seller (1932-1941).

Given the dramatic situation in the sales and the scarce effect the sales contacts with representatives was having, after 18 disappointing months, the board of the cartel addressed measures in October 1931 to stimulate sales, such as giving wider margins to some intermediaries, like Roura & Forges, or significantly increasing their commissions. It was a very delicate moment, when there was a general slump in the economy and when the pound had only recently abandoned the gold standard (September 21, 1931), so sending the pound plummeting by 25%, with the result that customers were refusing to trade in that currency. ME immediately reacted by shifting to the

41 Zarraluqui (1934, p. 754) offers an erroneous date in his book, delaying the reduction until the autumn.

42 All sales below 15 pounds would require the express approval of the chairman and vice-chairman. In the session of the same day it was agreed to send an offer to General Electric of 7,000 to 10,000 flasks at 13.5 pounds for exclusive use in its new boilers. AFA, R-15/514, ME Managing Committee minutes, Vol. 2, May 14, 1931. The new price was published in the official journals two days prior to its coming into effect.

43 ACS, ASIRI, SerieRossa, b. 520, MercurioEuropeo, Report on year 1930; Report on 1931.

Dollar-Gold as the currency to establish official mercury prices, which nevertheless went down in the fourth quarter of 1931 from \$80 to \$65⁴⁴.

A new strategy was necessary. The situation was but quite complex. Spanish mines remained in the best position because of their structure, although counterbalanced by the low international business image of Almaden and the weakness of the Spanish government, considering the general political and social situation of the country. Monte Amiata and the Italian government had a higher reputation, but most of the business related costs were limiting the freedom of movements. On the other hand the main leaders of Monte Amiata acknowledged in 1932 that they had over evaluated Spain: Spanish bureaucracy and government were largely counterbalancing the richness of the mines. But fears about real possibilities to compete with Almaden in a free market did not completely disappear among the Italians. So two weaknesses could become a force, but only with a different approach. The need for a new start was clear in Salvadori's words at a meeting of the board of directors of the Monte Amiata company: ME – he said – was a «bureaucratic not a commercial organism». It was then necessary to start negotiations with the

44 AFA, R-15/514, ME Managing Committee minutes, Vol. 2, October 1931 sessions; ACS, ASIRI, Serie Rossa, b. 520, Mercurio Europeo, Report on 1931.

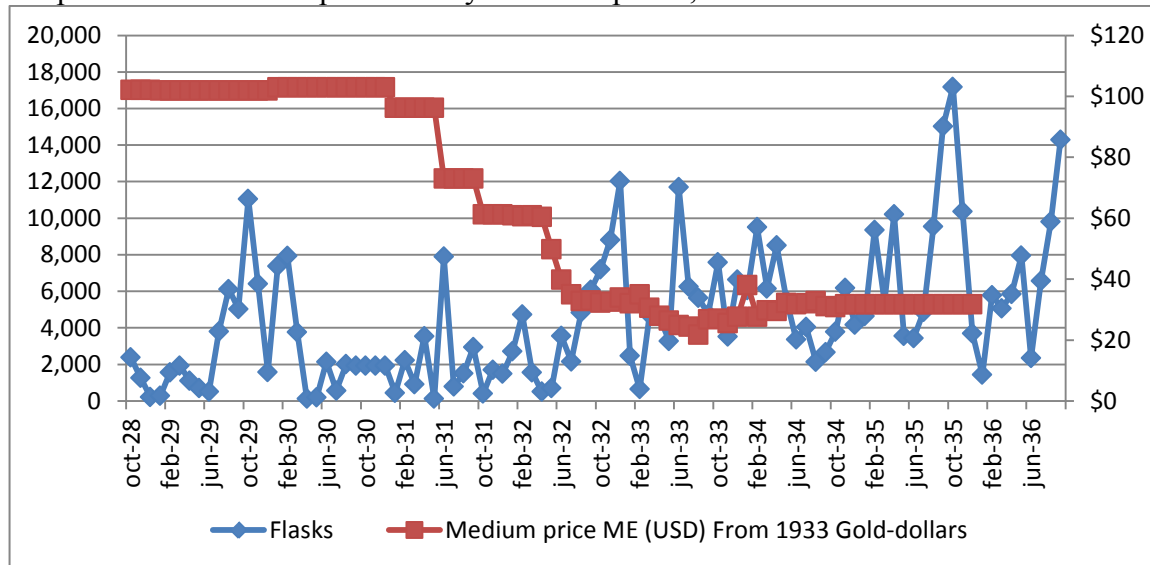
«enemy», the main market brokers, the very same people whom they had been fighting for the last three years (Pickering, Weis, Hirsch, Devusrme, Hondheimer and Offembacher). From the Italian point of view this was the last resort for the sector: the alternative was the dissolution of the cartel with all the risks that this solution could hold⁴⁵.

On behalf of the group Pickering offered a global contract which aimed to sell 25,000 flasks a year for three years, at the current market price, with a margin of a further 5,000 against possible sales. The commission on the sales would be 3%. ME would be able to sell however much it wished but always at one pound more than the brokers, and not less than 50 flasks, which would be deducted from the sales agreed (25,000). The price was to be fixed by a mixed ME-brokers committee, which would perform bring in lower prices than the current ones. The only risk the syndicate committed itself to was that if it had not sold the 25,000 flasks by the end of the year, it would compensate the losses through its commissions⁴⁶.

45 Minutes of the Monte Amiata Board of Director, meeting of 14.12.1931.

46 A further offer by Pickering included a better price but also the closing down of the Lausanne ME commercial office, and the exclusive selling rights of all the Spanish and Italian production. AFA, R-15/514-515, ME Managing Com-

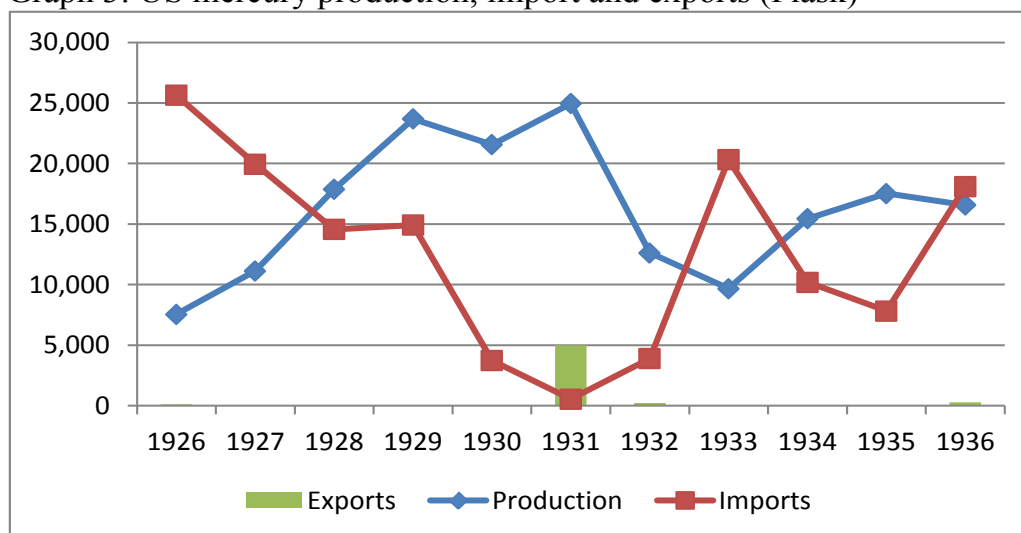
Graph 2: Mercurio Europeo monthly sales and prices, 1928-1936



Source: Managing Committee minutes, AFA, R-15/513-518.

Note: the original source does not provide monthly prices for 1931, so the official price has been set up to the changes of price in June and October.

Graph 3: US mercury production, import and exports (Flask)



Source: Wiltse, Charles M. (1946), p. 57.

Roura & Forgas, through the Spanish partners, lost no time coming up with a counterproposal. The Spanish company offered to sell ME mercury everywhere in the world, except in Spain and Italy, from January 1, 1932 to September 30, 1934 under the following conditions. The firm undertook to sell a minimum 30,000 flasks per year (22,500 in 1934, for the 9 months that the contract would run that year), for the duration of the contract, excluding sales for mercury boilers, for a 3% sales commission; Roura & Forgas would seek to sell 50% in the first half-year, although the figure would be 25% in 1932; the price was always to be fixed by ME, but after consultation, and the possibility for Roura & Forgas of a 10% elasticity to fight the competitors; if it did not sell the minimum quota in one year, the firm undertook to pay ME the unsold part at the mean price of the previous quarter the following January. For its part, ME could sell as much as it wished itself, but at £5 higher than the Roura & Forgas price, and these sales would be deduced from the 30,000 quota, with Roura & Forgas receiving half their commission⁴⁷

mittee minutes, Vol. 2 and 3, November 17 and 18, 1931, sessions. As well as the proposal, ME received a visit from Berk, another important broker who controlled the sales of the mines in Mexico, Chile and Bolivia (about 10,000 flasks). He offered ME an alliance on the basis of a price reduction to approximately £8.

⁴⁷ Finally, as guarantee, Roura & Forgas was to deposit \$150,000 in a leading bank, agreed upon with ME, and would allow the cartel to have a delegate in its offices to supervise the whole process. AFA, R-15/515, ME Managing Committee

The ME board immediately took up the offer, so obviating that of the “speculators”, which it did not like because there was no bank guarantee attached, because it would mean a loss of price control and, in some way, could be seen as giving in to their opponents of the last decade. Moreover, the offer provided the opportunity to close the costly Lausanne office (it was necessary to change the ME rules in order to suppress all the clauses on management by this office), not to mention the fact that Roura & Forgas had in place an extensive worldwide distribution network, which it would extend in the following years.⁴⁸

The choice of Roura & Forgas could not have been better under the circumstances as, although

minutes, Vol. 3, November 20, 1931 Session

⁴⁸ Roura & Forgas was a long-standing trading house that had started in Catalonia, in Begur (Gerona) in 1790. The company grew in the mid nineteenth century under Francesc Forgas Elias, who also traded in coral. In 1870 he opened an office in London with his partner Roura and then set up branch offices in Edinburgh, Liverpool, Hamburg, Mainz, Yokohama and Australia. The business closed in 1950. Pere Sala (1998), p. 117-118. Following the 1937 Paris International Exhibition, Almaden Brochure, Roura & Forgas set up its headquarters in London and had offices in Liverpool, Edinburgh, New York, Melbourne, Kobe, Hamburg, Johannesburg, Paris, Bombay, Calcutta, Madras, Ljubljana, Shanghai, Lisbon, Oporto, Warsaw and Bucharest. By 1937 it had mercury stores in London, Paris, Antwerp, Hamburg, New York, Osaka, Yokohama, Hong Kong and Johannesburg.

prices did not improve, sales picked up immediately. Indeed, not only did the firm cover the minimum quota for October 1932⁴⁹, more importantly, it put a stop to the growing sales and productions of the outsiders (see Graph 4), and put the cartel firmly back as the world market leader, especially in North America, Germany, the United Kingdom and its colonies and Japan.

The relation with the London firm was tremendously fluid and efficient. Roura & Forgas sent the committee detailed monthly reports on sales and the situation of each of the markets, and these served as the basis for more coherent price policy given the reality of the depressed industry. On various occasions ME went so far as to consider withdrawing its London agent. In January, 1933 both parties agreed to modify the contract given the results of the previous year, and the sales commitment was upped to 50,000 flask at \$30; if it sold at up to \$32 the margin was to be kept by Roura & Forgas, while from \$32 to \$35 it would be divided between them and the cartel, with the exception again of the steam boilers, on which Roura & Forgas were to receive a commission of 1%. Nevertheless, the market continued to severely punish mercury prices, which fell to below 10 pounds (\$35.06) in July 1932, and slipped on down to a minimum 21.8 gold dollars in August 1933. At that price, as had been mooted, Monte Amiata had to reduce its production and lay off most of its workforce⁵⁰. So it was that between the summer of 1933 and that of 1934, only 1.725 flasks were produced, with the corresponding important financial losses. In Spain, the Almaden mine contracted a production of below 20.000 flasks for a full five year period. Yet the cartel had saved itself in time.

This apparent honeymoon among the ME partners had hidden many more critical elements. The American market was still too weak, while the instability of the US dollar permitted sometimes

49 Pickering did not react well to the decision or to how the market was going in the hands of Roura&Forgas the following year, and he presented a new offer on October 11, 1932 to purchase 48,000 flasks at a net price of \$32 FOB. It was not taken up. ME did, however, use the offer to put the screws on Roura & Forgas to improve the conditions of the contract.

50 The Italian mercury mines went from having 3,207 workers in 1929 to just 865 in 1934. Segreto (1990), p. 226.

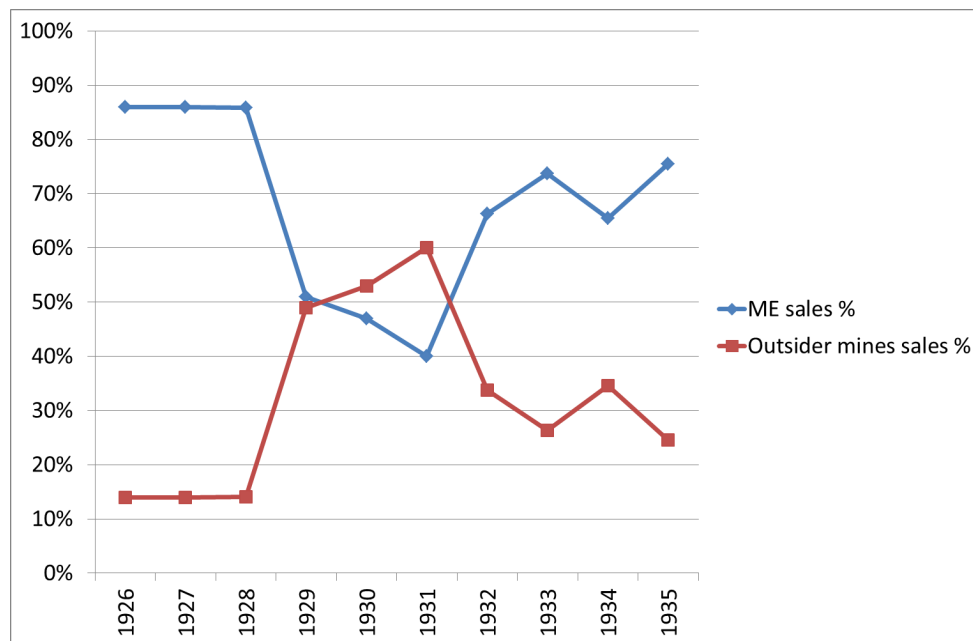
the very aggressive Mexican producers to compete with the ME deliveries. On the other hand the US mercury companies met in a new organization, the National Quicksilver Producers Association, which informally admitted the possibility of an agreement with ME based on the fixation of a minimum price for the flasks. But they also added that without such an agreement they were ready to ask the Roosevelt administration for strong protection against foreign mercury. This proposal was not supported by the representative of Almaden, which correctly reckoned that any price agreement with the American mines would have opened the door to an even more aggressive policy by the Mexican producers⁵¹.

Meanwhile in early 1933 the ownership structure of Monte Amiata changed significantly. The consequences of the 1929 crisis was a deep reform of the banking system, the separation between short and long term credit, and, even more important, the setting up of a new State holding company, Istituto per la Ricostruzione Industriale, which took over all the shareholdings previously in the hand of the main Italian banks. So Iri became the new main shareholder of Monte Amiata. A new chairman was elected, Vincenzo Faggiuoli, a talented expert in ancient Greek and Latin before becoming the secretary of the Finance minister Alberto De Stefani in the first Mussolini government, and with some recent successful experiences as a manager of two State controlled companies, the Società finanziaria per l'industria e il commercio and the Società egiziana fosfati.

The new chairman was no less strong in defending Italian interests against, first of all, the other member of the cartel, but had a clearer vision of the real balance of power between the two groups. In 1933 the Spanish group threatened to decrease the flask price to destroy outsiders, but also to attack the Italian partners. In fact Almaden's strategic aim was to maintain the agreement but to renegotiate the quota towards a 65-35 proportion from a 60-40 which had been the proportion between the two groups since 1931. The new Spanish republican government

51 ACS, ASIRI, b. 520, Annexe au procès verbale de la réunion du Mercurio Europeo tenue à Paris les 9-14 octobre 1933.

Graph 4: Distribution of sales in the world mercury market. 1926-1935.



Source: From 1927 to 1931, report from Roura & Forges, *Mercurio Europeo*, Comité Directive minutes, Vol., since 1932, except 1928, calculated from ME Sales (see Graph 2) and Zarraluqui (1934), p. 799. Before 1928, ME sales ME means the sales of the cartel member mines.

was quite negative about the renewal of the cartel. Political and ideological reasons suggested the withdrawal of Almaden, while the general director of the mines, despite his personal sympathies for Italy and its regime, was supporting the idea of a new agreement although on different basis.

According to the Italian ambassador in Spain, Almaden had a practical and a technical interest for keeping the agreement, mainly due to the « still not perfect and efficient preparation for a competitive regime with Italy both from the metal extraction and the commercial points of view». But he also criticized the former Monte Amiata CEO, Salvadori, for being too optimistic in the negotiations with the Spanish partners, starting talks with the tactic of denouncing the agreement, and the strategy of offering a small piece of the cake to the Spanish (including some Italian outsiders in the cartel) to keep the production proportions between the two groups⁵².

Fagioli was a better negotiator than Salvadori, because he admitted that the modernization and the technical capabilities of the Spanish mines left the Italians little to hope for. «The Spanish will be able to deliver alone the mercury to all the market, and if we Italians remain, for national prestige, on the market and keep on selling, we should do in loss, and in this case the losses will be only for the State».⁵³

This more realistic position facilitated the new rounds of negotiations between the two groups. The cartel partners renewed the agreement of June 7, 1934 (through to the end of 1936), and this included a series of conditions that Spain saw as being beneficial: the quotas of each country were to incorporate all the mines, including the outsiders, from the moment the Italian State had taken over the administration of the whole production⁵⁴.

⁵³ Ibid, Fagioli to the Italian Ministry of Corporations, 7.1.1933.

⁵⁴ This condition affected Italy more, where the Siam and Argus mines accumulated productions of over 4,000 flasks, while Spanish outsider mercury mines were purely residual.

⁵² Ibid, Italian ambassador Guariglia to Italian Foreign ministry, 26.8.1933.

Table 3: ME mercury purchasers by countries, 1929-1934.

	USA (and Canada)	UK	Germany	Japan and China	France	British dominions	Switzerland	Belgium	Others	Total Sales
1929	11,357	7,266	5,420	6,800	800	249	707		3,812	36,411
1930	2,350	11,486	6,692	5,025	4,071	1,240	1,204	825	952	33,845
1931	150	7,210	4,265	5,450	2,852	952	227	375	782	22,263
1932	7,820	13,507	8,388	13,149	1,947	3,468	319	584	1,154	50,336
1933	20,382	14,882	13,467	9,568	2,114	2,198	478	552	2,735	66,376
1934	7,560	14,552	16,933	11,659	1,668	3,888	214	255	4,381	61,110

Source: AFA, R-15/516, ME Managing Committee minutes, Volume 4, p 66-67.

When they signed the agreement a new contract with Roura y Forgas was active since the end of 1933. At the end of that year, after refusing a proposal by Pickering to replace Roura as an exclusive agent with the promise to sell flasks also in the very promising Japanese market, a new contract was signed with Roura y Forgas valid till January 1936. The contract was then reviewed again in 1934⁵⁵, and now granted Roura & Forgas a leeway of 15% on the price fixed by ME and keeping a minimum of 115,000 flasks for the following 23 months. This figure was increasingly further from that of the cartel's final sales, which progressed amazingly from 61,852

flasks in 1933 to 62,155 in 1934 and 92,679 in 1935, which was when the Almaden mine had completely exhausted its stock and began work to extend the mine.

The evolution of the cartel caused great satisfaction among the partners in the summer of 1936, with the outbreak of the Spanish Civil War. By then the recovery of the Almaden productions was a fact, with 43,000 flasks being produced and sales continuing the successful trend of the previous year (until September the cartel had sold together 59,112 flasks).

Table 4: Quotas in the Mercurio Europeo 1934 agreement .

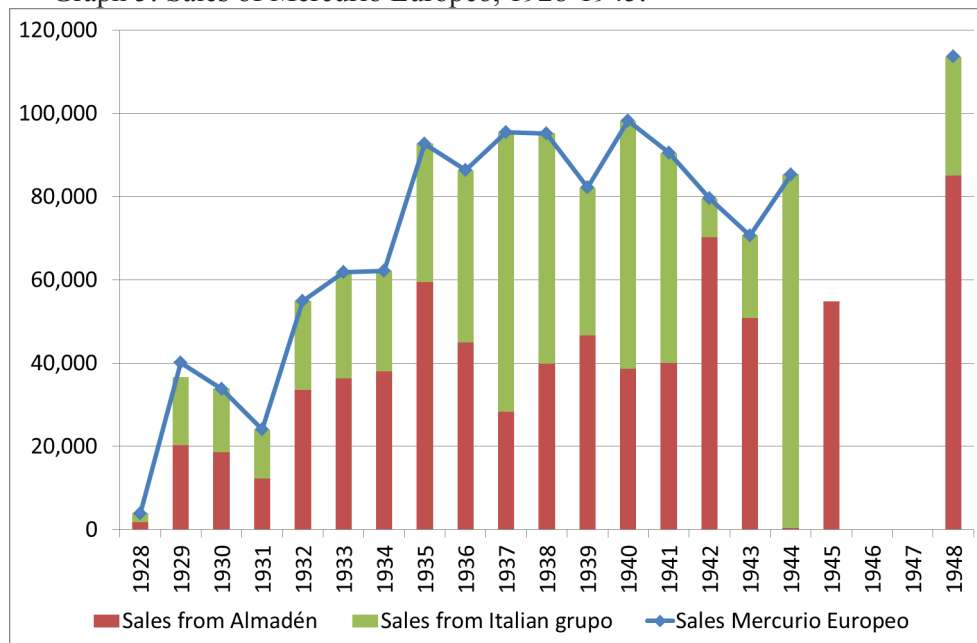
	Spanish Group	Italian Group
Up to 60,000 flasks	60%	40%*
From 60,001 to 70,000	61%	39%
From 70,001 to 80,000	62%	38%
From 80,001 to 100,000	65%	35%
Over 100,000	66%	34%

Source: AFA, R-15/516, ME Managing Committee minutes, Volume 4, Sessions of October 9 and 11, 1934

* the Italian quota was shared out at this level as follows: Monte Amiata, 16.205%; Idria, 8.400%; Siele, 7.795%; dissident Italian mines, 7.6%. The quota would be proportionally reduced as higher sales levels were reached.

55 AFA, R-15/516, ME Managing Committee minutes, Vol. 4, January 15, 1934; ACS, ASIRI, Serie rossa, b. 520, "Mercurio Europeo, Rapporto sulle sedute del Comitato direttivo di "Mercurio Europeo", tenute a Parigi dal 10 al 15 dicembre 1934".

Graph 5: Sales of Mercurio Europeo, 1928-1945.



Source: ME Managing Committee minutes and Spanish Group Minutes, AFA, R-15/513-529.

The Almadén mine was in the hands of the Spanish Republican Government for nearly the duration of the war, and it took great care to look after one of its safest financing assets. Relations with Italy became complicated, with the fascist Italian Government giving out-and-out support General Franco, and even sending troops to support him in Spain, while also keeping the contacts with the Spanish Republican government.

In December 1936 Italian representative signed a provisional agreement with General Franco (which gave the Italians again a 45% quota plus the possibility of selling out of the cartel), to be valid for one year, but only starting from when nationalist troops occupied Almadén. This was not the case till the end of the Civil war. To avoid any suspicious and to limit any attempt by the Republican government to denounce the cartel, Italians agreed with Spanish to continue the contract with Roura & Forgas.

The Spanish Government decided to continue its operations with Roura & Forgas under the same conditions as the cartel, as, paradoxically, did the Italian Government. On this occasion it delegated sales to a middle company named Amalgamated Merchants Ltd., which everybody assumed belonged to

Roura & Forgas, a belief that was confirmed later by the cartel. The situation was fully used by the Italian group to increase its position even beyond the quota established in the agreement. Only in the first nine months of 1937 total ME sold were 61,021 flasks: the proportion established by the cartel would give 33,562 flasks to the Spanish and 27,459 to the Italian producers; the reality was very different, with the Spanish selling only 22,497 and the Italian 38,614 flasks⁵⁶. The Italian government was also considering asking Franco, once he had occupied Almadén, to leave them the total control of the Spanish mines' commercial activities, as a compensation for its financial support to the military coup⁵⁷. The unbalanced situation continued in 1938, when the Italians sold 22,000 flasks at \$66, while Almadén sold only 10,000, and at just \$52. The Italian group secretly worked also to avoid the delivery of empty flasks to Almadén, where the production went on despite many difficulties⁵⁸.

56 Archives Finmeccanica, Monte Amiata minutes of the BoD, 22.9.1937.

57 With an international market price of \$62-67, the project was to give the Spanish \$8/10 per flasks and keep the balance for the Italian Finance ministry. An prudent evaluation spoke about the equivalent of 40 million Lira as a benefit for Italy (ibid, meeting of 27.2.1937)

58 Ibid, 19.10.1938.

5.- The great war business (1939-1945).

Almaden fell into nationalist hands on March 27, 1939, just a few days before the end of the Spanish Civil War.

The ME agreement was renewed (July 4, 1939) through to April 1940, with revised quotas, exactly those requested by the Italian during the first secret negotiations with Franco in 1936 (55% Spain and 45% Italy)⁵⁹. The outsider mines were not included, which was a sign of the weakness of the Spanish group in the face of their partners, who had been strengthened by circumstances.

In spite of renewing the contract in January 1939, the Spanish Government decided to break with Roura & Forgas on account of the support it had offered the republican government during the war. It therefore called a tender in autumn 1939. However, it was not awarded since none of the bidders were considered to be sufficiently knowledgeable about the business, nor could they provide sufficient financial guarantees. The proposals of Pickering and Roura & Forgas, who made an offer through the banker Juan March, had been discarded beforehand.

The outbreak of World War II - which theoretically implied an automatic dissolution of the cartel, but the Spanish never denounced it - supposed a spectacular increase in sales and prices. Prices went in the last weeks of September 1939 from 80 to over 100 dollars the flask, with two immediate agreements with the British and French Governments to provide them with 10,000 and 5,000 flasks⁶⁰. This sudden demand stimulated the cartel into putting up its minimum prices to 120 and 125 dollars for Europe and Asia at the end of November⁶¹, and then put them up another 20 dollars the following month and in just a few months to an official \$250, a price that was maintained for the duration of the war (see Graph 7).

Following the failure of the sales auction, the Spanish Treasury Minister (José Larraz) was determined in early 1940 to regain the direct management of sales through two independent offices, one in Madrid and the other in Rome, even though the Almaden directors and the Italian partners advised otherwise⁶². The experiment was not a happy one; the offices did not work in coordination and often competed against each other. The upshot was that by the end of the year Italy had far exceeded its quota over Spain, fundamentally on account of its intense sales to Germany (59,581 versus 38,618), that Italian asked to consider out the 55-45 quota agreement as an element of the general agreements between the two governments for the huge Spanish debt with Italy, 6 billion Lira⁶³.

By then, however, the Spanish, Italian and German Governments had decided that the Frankfurt based Metallgesellschaft would handle the cartel's sales, as indicated by the *Reichsstelle fuer Metalla*, the German Government body in charge of controlling mercury consumption in Germany and all the territories under the Third Reich. The agreement took effect in the summer of 1941, although it was not signed until January⁶⁴, which was a relief for the Spanish because it gave them the hope of finally compensating for the sales between the two groups (some 25,000 flasks to date).

The contract with the Metallgesellschaft⁶⁵ shared many similarities with that signed earlier with Roura & Forgas. As of January 1, the German company was to sell in Germany and in all the countries under the military control of its army at the time (Holland, Belgium, occupied France, Poland, Serbia, Czechoslovakia, Denmark and Norway) the entire

62 All that the Spanish consortium obtained from its minister was that its sales in the USA were to be handled by the Swiss company, Nussbaumer.

63 Archives Finmeccanica, Monte Amiata minutes of the BoD, 13.3.1940.

64 AFA, R-15/527, ME Spanish group Minutes, Vol. 6, sessions of August 30, 1941 and January 22, 1942.

65 AFA, R-15/518, ME Managing Committee minutes, Volume 6, sessions of December 14 to 19, 1941 (meetings in Geneva, Zurich, Basel and Frankfurt). These meetings were attended by Marañón, Rossell and Montagna, in representation of ME. After the signing of the agreement, the ME meetings were held in Berlin.

59 Ibid, 18.7.1940; AFA, R-15/526, ME Spanish group Minutes, Vol. 5, sessions of May 8, 1939;

60 AFA, R-15/526, ME Spanish group Minutes, Vol. 5, sessions of November 5 and 25, 1939.

ME production at the price stipulated by ME⁶⁶, at a commission of just one ¼% FOB on the sales for consumption and, in the case that ME was selling in those territories, it would be just half that figure; the Metallgesellschaft even went so far as to deposit a guarantee of 1,000,000 marks at the Frankfurt Deutsche Bank and also undertook, as mentioned, to respect the internal quotas of the cartel⁶⁷.

Thereafter, sales were concentrated more and more in Germany (see table⁶⁸). Meanwhile, the agent for North America, Nussbaumer, informed that the American Government was not closed to a possible purchase of 50,000 to 100,000 flasks from Almaden, on condition that the price was around 200 dollars, although the purchase did not go ahead when the USA entered the war⁶⁹. From then on, exports to Japan, which had been the largest buyer of Spanish mercury up to Pearl Harbor, became increasingly complicated, but not so much for problems of transport but for problems with payments⁷⁰. Note the important figures in the table below for exports to Portugal, a country whose industry had no mercury needs. It seems clear that these shipments ended up in the hands of the allied countries⁷¹.

In short, the early years of the Second World War marked the highpoint of the cartel's activity.

66 During the negotiations the *Reichsstelle fuer Metalla* tried to decide itself the price, but was opposed by the cartel. Neither was the *Reichsstelle* successful in including in the contract that any disputes would be settled in a Berlin court. Instead, this would fall to those of Madrid or Rome.

67 Perhaps as compensation to the Germans, the committee decided to grant the German's request, which was insisted on by the Italians, to reduce the price to 200 dollars the flask, in spite of the protests by some high ranking members of the Spanish Government.

68 The sources consulted only detail Spanish figures, although it has been confirmed that Italian sales were even more geared towards the Third Reich, as they had no other markets.

69 AFA, R-15/527, ME Spanish group Minutes, Vol. 6, sessions of October 30, 1941.

70 In August 1942 an offer from Japan to purchase 20,000 flasks had to be ruled out because half the payment was offered in gold. And there was no guarantee that this could be delivered.

71 To these figures for Portugal must be added some lesser ones that nevertheless were a cause for concern for Almaden, since they were smuggled into Portugal and came from sales to Spanish industries that were not bound by the cartel.

Almaden and the Italian mines maximized profits, reaching record sales in 1940 (98,199 flasks) and record productions in 1941 and 1942 for Italy (94,230 and 94,161 flasks) and Spain (86,473 and 72,288 flasks⁷²). This did not mean that Spain sold below its quota in these years, since in 1942 the Italian group compensated the Spanish for the deficits of the two previous years by increasing its stock (see graph 7). Italian had a strong interest in keeping good bilateral relations because they knew that the dissolution of the cartel would have given the opportunity to Almaden to sell to Germany at 70-80 US dollars, what now Italian, with the Spanish permission, were selling at 200 US dollars⁷³.

In 1943, the advances by the allied front in Italy supposed further difficulties for the cartel's activities, as had occurred during the Spanish Civil War, but formally ME continued to function. In August, 1943 the last meeting of the cartel was held until after the war in the Hotel Baur au Lac de Zurich. As of then, the partners began to have less and less information about each other's dealings, and what arrived was by letter or telegram, since the Italians were unable to get visas to visit Switzerland. Thus, in 1943 the Italian group declared sales of 19,797 flasks, although the Spanish suspected there was fraud on the part of their Monte Amiata partners, since they had evidence of sales of 42,800 flasks in total, and could hardly believe that the difference was accounted for by domestic consumption alone⁷⁴. In any case, as the months went by, Spain felt freer and freer to impose its own price policies⁷⁵.

The situation in Almaden was the reverse with sales grinding to a halt in June 1944. The mine did not sell a single flask that month or the next and the figure for the whole year was a meager 343 flasks⁷⁶.

72 Unfortunately, a good part of the increase in Spanish production figures was down to use of political prisoners in the Almaden mines during these years.

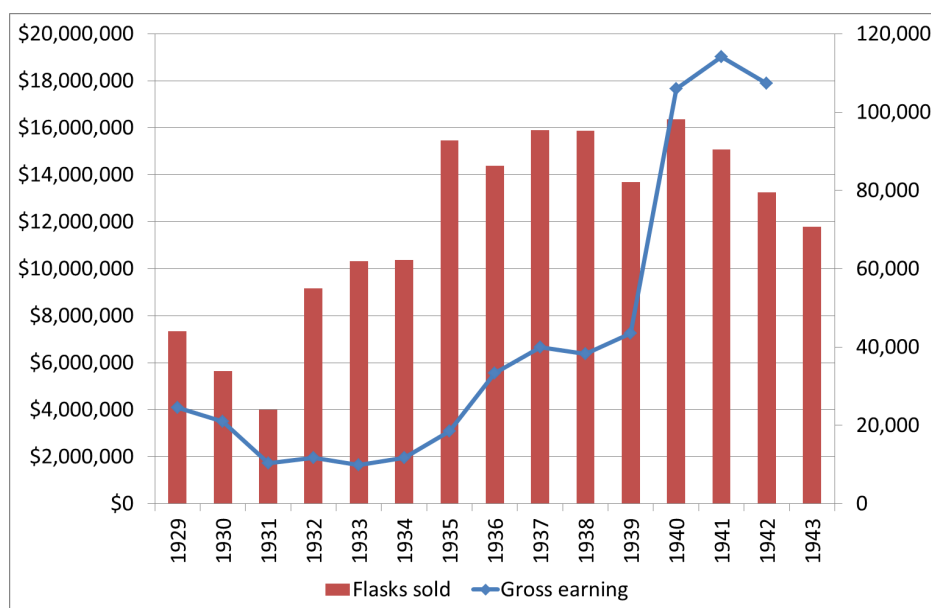
73 Archives Finmeccanica, Monte Amiata minutes of the BoD, 6.11.1941.

74 AFA, R-15/527, ME Spanish group Minutes, vol. 6, Session May 12, 1944.

75 AFA, R-15/527, ME Spanish group Minutes, vol. 6, Session October 19, 1944

76 Specifically, 200 for Germany, 15 for Sweden, 50 for Portugal and 78 for Finland. The Almaden production for

Graph 6: Mercurio Europeo sales and gross earnings, 1929-1943.



Source: AFA, ME Managing Committee and Spanish Group minutes, 1928-1943.

The messages sent to the Italians at the end of the year all pointed towards a reduction in the official price as soon as possible⁷⁷. The Italian response was an emphatic no, since it needed funds to restore the lamentable state of its mines after their destruction by the retreating German troops.

6.-The Cartel is dead. Long life to the cartel?

The first days of 1945 saw a series of meetings in Madrid between USA Embassy staff and Almaden directors. These would suppose a turning point in the mercury export policy of the Spanish government and also in the structure of the world mercury market. The American Government was already preparing a program of massive purchases and stock-building of mercury which would affect the market over the coming decades, and it was openly sounding out Spain now that the latter had lost its business links with Germany. The situation in the USA was complex; the general slump in international prices had pushed their mines to the verge of a collapse. Most of them were by now incapable of operating at below \$200, while the New York price was barely holding at \$100. But the country needed to buy more, and evidently at a lower price than the cartel was demanding. The situation was probably also influenced those years was 33,846 flasks.

77 AFA, R-15/527, ME Spanish group Minutes, vol. 6, Session of November 1, 1944.

by the fact that the Allies found 45-50.000 flasks in Germany once they occupied the country in 1945⁷⁸. During the various meetings the experts exchanged information and the Spanish Government recognized to the American Embassy a stock of unsold mercury of 89,754 flasks at the end of 1944⁷⁹. From then on, sales to the USA began to pick up and, even before the war ended, it had become the largest importer of Spanish mercury.

In August 1945 ME had its first formal directors' meeting for more than two years. The aim was to rebuild the sales structure and generate a new sales policy in line with the circumstances. The price of \$100 was by then seen as being unrealistic, but \$80 was not, and so the war market period was at an end.

The minutes of the management committee are scant on information for the period, referring mainly to the negotiations to renew the cartel agreement, which were concluded in August 1946. Just as in 1934, the new agreement that extended the partnership to all the small outsider mines of Spain and Italy. Thus, Almaden was joined by the Compañía

78 Archives Finmeccanica, Monte Amiata minutes of the BoD, 26.3.1946.

79 AFA, R-15/528, ME Spanish group Minutes, vol. 7, Sessions February 12 – 21, 1945.

Table 5: Almaden mercury purchasers in 1943.

Country	Number of flasks	Paid (USD)	% Sales	Price USD (Average)
Germany	33,638 (30,654)	6,727,600	66.15	200
Sweden	190 (999)	7,500	0.37	250
Ireland	60 (0)	15,000	0.12	250
Portugal	16,539 (38,616)	4,134,750	32.52	250
Belgium Congo	8 (0)	2,000	0.02	250
Finland	419 (0)	104,750	0.82	250
TOTALS	50,854 (70,289)	11,031,600	100	

Source: AFA, R-15/527, ME Spanish group Minutes, Vol. 6, sessions of February 1, 1943 and February 3, 1944.

In brackets sales in 1942. Including a sale of 5 flasks to Denmark.

Mercurio Astur (Oviedo), the Mina San José (Almería) and Cinabrios de España (Badajoz), and in Italy the companies Argus (Milan) and SIAM (Rome) joined Monte Amiata and Siele. Idria, now in the Yugoslavian territory, were no longer in the agreement. The quotas continued to be of greater weight than the Spanish production⁸⁰.

In the same year discussions started to find a new exclusive agent. For the Italian group Anglo-Foreign Securities, later renamed Transalpina, based in Zurich, was offering the best conditions (the three-year contract was for 65,000 flasks per year, with a commission of 4.5% up to 30,000, 5.5 to 40,000, and 5.5 above that number). Almaden directors were reluctant to accept an Italian firm as sole seller⁸¹, but finally agreed. However, Transalpine was not able to get the 600,000 USD deposit/guarantee established in the contract⁸², so ME was forced temporarily to recuperate the old system of multiple representatives

by regions.

In 1948, the two members of the cartel discussed the possibility of establishing a central sales bureau in Paris or in Zurich, but the Spanish group opposed for domestic political reasons (the replacement of the Minister of Finance, and the need to appoint a new chairman in Almaden and a director general for the new sales office favorably known to any possible candidate for that political position)⁸³. But the new events that occurred some months later made it impossible to reach an agreement between the two members of the cartel

Despite the doubts in the system of representatives and the weakness of the sales, the market was offering good opportunities to both the groups. In 1948 the cartel was able to sell 113,583 flasks (85,117 the Spanish Group and 28,466 the Italian one)⁸⁴ Prices were again at a managing level for both groups, while Italian accepted the idea of some compensation for Almaden, such as the exclusive sales of 10,000 flasks to Imperial Chemical in 1948⁸⁵. In this

⁸⁰ The system chosen for the mercury distribution was again through commission agents, but the documents consulted do not allow for any conclusive analysis of the results. In 1948 there was a return to the idea of the sales office.

⁸¹ Archives Finmeccanica, Monte Amiata minutes of the BoD, 12.10.1946. ME received other proposals from Pickering and Roura&Forgas.

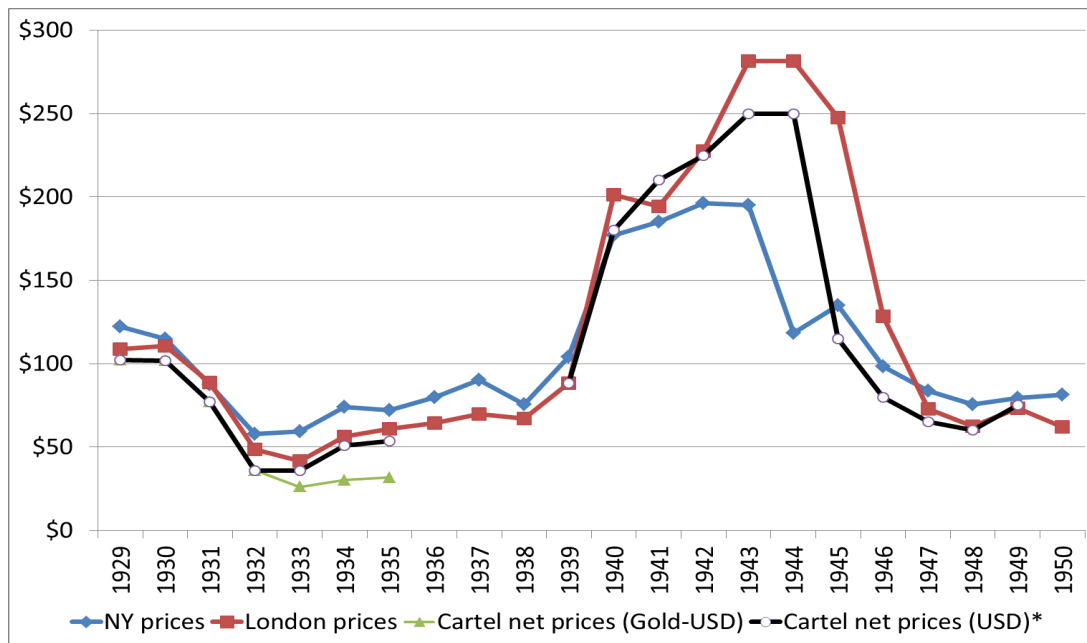
⁸² AFA, R-13/520, ME Managing Committee minutes, Vol. 6 Sessions of December 7-8, 1946.

⁸³ NARA, RG 59, 865.602/7-2388.

⁸⁴ ACS, ASIRI, b. 520, notes for the meeting of the board of director of the Monte Amiata, 10.2.1949

⁸⁵ AFA, R-13/520, ME Managing Committee minutes,

Graph 7: Official mercury prices in New York, London, and Mercurio Europeo average gross prices (\$/Flask)



Source: AFA, ME Managing Committee minutes, 1928-1945, and United States Tariff Commission. Mercury. Washington, 1944, p. 15.

context, the American Government requested from the cartel the sale of 80,000 flasks at a maximum price of \$75, and preferably at \$70, to which the cartel replied confirming that it could immediately sell up to 100,000 flasks at those prices. This spelt the beginning of negotiations that would continue during the spring of 1949⁸⁶. The US administration also insisted very much on opening a new central sales office in Zurich, which the Italian were very much in favor of, while the Spanish government was much less enthusiastic⁸⁷.

All seemed ready when the Spanish group learnt through the American press of the massive deliveries of Italian mercury to the USA. It was finally confirmed that they had sold in April 1949 the whole order at \$70 the flask without taking into consideration the Spanish part. There followed protests to the committee of directors and to the highest levels of both governments, at a time when other diplomatic conflicts, which were unrelated, were in full swing.

Vol. 6 Sessions, meeting of 28.5.1948.

86 AFA, R-15/520, ME Managing Committee minutes, Vol. 8 Sessions of April 2-5, 1949.

87 NARA, RG 59, 865.602/7-2348.

The Italian Government claimed that the sales had been made under the Marshall Plan - «a special and secret sale» had been defined in a meeting of Monte Amiata board of directors –made in the framework of the US strategic stockpiling, which would not affect in any case the market, an opinion that Spain clearly did not share⁸⁸.

US administration, that in principle was fighting against any cartel and restrictive business restrictive practices as a pillar of the new international economic order⁸⁹, remained neutral in the controversy. Nevertheless it discreetly offered the Italian government some information about sales by Almaden out of the cartel in 1950: 45,000 under the British-Spanish trade agreement; 40,000 to Global Trading Co. of Lichtenstein (a company working for the Soviet government), and 7,000 to an American

88 Archives Finmeccanica, Monte Amiata minutes of the BoD, 13.9.1949; ACS, ASIRI, b. 520, note for the ministry of Foreign Affairs, 6.3.1952. For a full description of the process, see Hierro de Lecea (2009).

89 W. Asbeek- R.T. Griffiths, 1996; Segreto-Wubs, 2011.

Table 6: Quotas in the ME 1946 agreement

	Spanish Group	Italian Group
Up to 65,000 flasks	61.50%	38.50%
65,000 to 80,000	61.75%	38.25%
Above 80,000	62.00%	38.00%

Source: AFA, R-15/519, ME Managing Committee minutes, Volume 7, sessions of May 20-31, 1946.

buyer⁹⁰. This cross information greatly reduced the space for Spanish legal complaints despite the fact that officially the Spanish government announced its intention to ask the Italian to pay a fee of 47 million USD, according to article 5 of the cartel agreement. But the Swiss tribunal never took a decision, because the Spanish government never registered the original agreement of 1928, an operation which would have cost in 1949-50 about 5 million USD⁹¹.

Once it became clear that all these tactical moves were just for better positioning in view of a new agreement, the member of the cartel started negotiations⁹², that were completed by 1954, when a secret agreement started to operate, and a new more formal one was to be signed in 1958. Meanwhile, Italians had already accepted to compensate the Spanish for the 1949 sale to USA with 812 million lire or 1.3 million USD and the exclusive right for Spain to sell Mercury to the USA for a year, up to a equivalent of 8.3 million USD. Only EEC antitrust regulations finally put an end to the cartel in 1963⁹³.

7.- Conclusions

The current state of the research allows us to put forward some conclusions that are much more than just provisional.

⁹⁰ NARA, RG 59, 865.602/7-2348.

⁹¹ ACS, ASIRI, b. 520, note for the ministry of Foreign Affairs, 6.3.1952

⁹² For a new cartel Spain demanded that Italy ceased all exports until Almaden had sold 130,400 flasks abroad, along with an immediate payment \$1,277,920 for the difference in price between the ME agreed price and the actual sales price or if not, the reception of 28,000 flasks of mercury (Minutes of the Spanish Sales Committee, January 27, 1950).

⁹³ AFA, R-15/527, Comité Exterior de ventas, Vol. 2, August 30, 1954. See also Segreto (1991), p. 164, and MacKie-Mason and Pindyck (1987), p. 193.

The study of the mercury issue is an example of a tremendously varied internal organization of a cartel for a single product and for a relatively short period.

In general terms it is shown that a general knowledge of a sector is not a guarantee for exports, even when there is an almost absolute duopoly without an accompanying efficient sales network. The Experience of the Mercurio Europeo sales office in the first stages of the cartel shows that without such a network and without minimum flexibility in prices, it is impossible to generate any sales policy.

Nevertheless, the delegation of sales proved to be a much more operative system, although only when it was exercised by a single seller, as in the case of Roura & Forgas (1932-1939) or Metallgesellschaft (1941-1942). In contrast, the system of representatives did not work, since there was not enough agility nor sufficient incentives. A fair part of the failure was due here to the impossibility of negotiating prices with a certain amount of flexibility in the middle of an economic crisis, something which Roura & Forgas had done when acting as sole vendor. So it is confirmed that maintaining artificially high and fixed prices is an error in this type of cartel, especially when there is a fall in demand, however small the participation of outsiders in the market may be. In short, this policy can only be justified under extraordinary conditions, such as occurred during the Second World War and when there are no real market alternatives.

Table 7: List of MercurioEuropeo representatives/Commissionist, 1946-49.

	Area of Sales	Comission	Minimum sale Guaranted (flasks)
Elder Smith Co. (London)	United Kingdom, its dominions, colonies and Ireland	2%	2,000
Belgameric (Brussels)	Belgium, Holland and Luxemburg	1.75%	300
Skandinaviska Malm Och Metallaktiebolaget (Stockholm)	Sweden, Norway, Denmark and Finland	3%	100
Phillipp Brothers Inc. (N.Y.)	United States	2%	1,000
Impex (Paris)	France and its colonies	2,5%	500
Patvag(Zurich)	Switzerland, Austria, Czechoslovakia, Rumania, Balkan states and Poland	1,5%	150
CelulosaPomilia (Buenos Aires)	Central and South America	2%	300
ChematarInc (N.Y.)	Soviet Union	2,5%	-
Cotadoria Nacional de Pelo (Madeira)	Portugal	5%	200

Source: AFA, R-15/528, ME Spanish group Minutes, vol. 7, Sessions December 12, 1946 and 13 February 13, 1947.

Apart from the pure sale dynamics, Mercurio Europeo is a historical refutation of the theoretical approaches from Stigler (1964) and his followers, while cooperation between Spanish and Italian mines won out in a long period against the temptation of either to monopolize the market (21 years, or 35 if we consider the cartel operation till 1962). The level of concentration in the mercury industry contributed to the agreement, but the cartel also showed some disequilibrium in cost and size between the partners. The strategy of cheating or excluding the Italian mines, through a sharp reduction of prices, was always in the hands of Almaden, but over the long-term, both earned more by cooperating than from competing. In addition, the cartel worked, in spite of the prevailing instability in the economic situation at the time, with an international economic depression, a civil war in Spain and the WW2. Mercurio Europeo was, therefore, one of the longest, most successful and most persistent examples of a Cartel in the his-

tory of modern mining; and was also at odds with the European trend that, following Schröter (1996 and 1997), saw the sudden disappearance of cartels from 1945.

In the case of both patterns in the agreement, the role of State as entrepreneur was pretty positive, contrary to the negative view of some authors on State Owned Enterprises in mining⁹⁴, at least from a marketing point of view. The training process in marketing skills, after decades of working through intermediaries, was a substantial success in the long run. Nevertheless, it seems clear that the interference of the Spanish and Italian Governments was, in some cases, clearly a hindrance to the smooth running of the cartel; for example, as occurred in the defenestration for political reasons of the cartel's proven best sales agent (Roura & Forges), the meddling in the

94 Radenski (1989), p. 49-53.

sales policies of the Spanish Government in 1940 or the lack of coordination in the 1949 sale to the USA Governments that caused the cartel to cease for around five years. In the end it appears quite clear that an active role of the State in establishing and governing the cartel is no guarantee for a more rational conduct of the business. Both the Spanish and the Italian governments were more interested in the defense of their respective national interests than in offering a “superior” rationality to the imperfections of the market and the strategies of the firms involved in the agreement. The result of such behaviors was more a stabilization of the social aspects of the mercury production than a real long term solution to the old and new problems of this sector.

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APPENDIX

1: *MercurioEuropeo* main purchasers, October 1928 to April 1934 (Accumulated figures):

USA	Flasks
General Electric Co	4,150
Pfizer	3,200
Merck Inc	2,900
Mallinckrodt	2,700
International Mini. Metl	2,600
Leghorn Trading Co	1,800
Berk-Woodridge	1,100
Merchant Chemical	1,100
Stanley Dogget	350
United Kingdom	
Levton HFG	8,600
Imperial Chemical	2,900
Pickering	1,200
W. Jacks	700
May Baker	650
Germany	
Chemische Fabrik Harktedwitz	3,100
Dr. Kassel	1,850
Deutsche Solvay	1,800
I.G. Farberindustrie	1,400
Fahlberg List	1,100
Leyton MFG	1,100
Impreva	750
Japan	
Mitsubishi	8,000
Imperial Chemical Ind	300
China	
Mitsubishi	600
Wulff & Marr	200
Jp Tak	400
Pickering	100
France	
Weil	1,700
Laborderie	200
British India	
Volkart Brothers	1,300
Imperial Chemical Industry	200
John Batt & Co	100

Source: AFA, R-15/516, ME Managing Committee minutes, Volume 4, p66-67

APPENDIX

2. United states mercury consumption for main uses:

Use	1928		1943	
	Quantity	Ratio %	Quantity	Ratio %
Chemical preparations	7,486	21.4		
Pharmaceuticals	5,493	15.7	14,563.0	26.7
Dental preparations	362	1.0	556.0	1.0
Fulminate	6,587	18.9	*	*
Agriculture	365	1.0	1,632.0	3.0
Vermillon	2,450	7.0	*	*
Antifouling paint	*	*	2,702.0	5.0
Felt	1,720	4.9		-
As a Catalyst or in the electrolytic preparation of Chlorine and Caustic soda	1,000	2.9	5,123.0	9.4
Electrical apparatus	2,556	7.3	3,284.0	6.0
Industrial control of instruments	2,996	8.6	3,674.0	6.7
Amalgamation	453	1.3	24.0	0.0
General laboratory use	628	1.8	360.0	0.7
Redestilled		-	5,384.0	9.9
Others	2,846	8.1	15,854.0	29.1
Unaccounted for		-	1,344.0	2.5
Total	34,942	100.0	54,500.0	100.0

Source: United States Tariff Commission. Mercury. Washington, 1944, p. 6.

* Included under "Others"