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The Italian Aluminium Industry: Cartels, Multinationals and the Autarchic phase, 1925-1943.

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Abstract.
This paper offers an analysis of the history of the Italian aluminium industry in the context of its international relations and investments. After being part of an international cartel of producers in 1926 Italy became a ‘semi-outsider’: even if the plants were controlled by international standing companies which participated to Alliance Aluminium Company (the cartel set up in 1931), Italian production was not restrained following the cartel policy for the crisis of 1929. Instead of reducing production, international cartels accorded growing quotas, bought great quantities of Italian production excess and placed a part of this quantity in the international market. But the role of Italian producers in the cartel became increasingly complicated from 1934, when Montecatini expanded its production reaching the Government policy for a strategic product like Aluminium. Finally, in 1936-7 a new impetus was given to Italian production with the Autarkic Plan for the Aluminium. The expansion of Italian production occurred without the control of the cartel but with the participation of Aiag and, to a lesser degree, of Alcoa. This paper wants to give consideration to the relationship between international cartels and new comers, underlining the particularity of Italy, where the fascist regime influenced those relations.

> Quand on étudie une affaire en Norvège, on étudie uniquement une usine dans l’univers soumise aux conditions mondiales. Celui qui veut fonder ou étendre ses affaires en Italie doit tout d’abord se préoccuper d’un marché, connaître ses capacités d’achat, sûr néanmoins le jour où il aura acquis ce marché, d’écouler sa marchandise sans craindre la concurrence mondiale.
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> Jean Louis Marlio,
> Chairman of Aluminium Français
> 1925.

Introduction.

This paper examines the international cartel policy of the aluminium industry in relation to Italy. The industry was largely controlled by an international oligopoly which set up cartel agreements with the aims to control the international production and markets. During the Thirties the small number of ‘outsiders’ were placed under the control of cartel companies that exploited their economic problems. In Italy this cartel control was not effective even if the aluminium industry was created by foreign investments. Some of leading international companies (Aluminium Français (AF), Alcoa, Vaw, Aiag) established the larger Italian aluminium companies and they tried to put them under the control of international cartel. Initially, between 1918 and 1924, these companies, except AF, developed a strategy to control Italian bauxite ores. However the lowering price of bauxite, which represented a little part of the production cost, drove those companies to interest in aluminium and in the Italian market. In particular, these international actors attempted to control the development of Italian plants regulating their production under the quotas of cartel and importing the 60-70% of national demand. Then, during the 1930-1931, Italy's position changed radically in international aluminium production, becoming an exporting country and reaching international markets. This was achieved within some agreements with cartel companies. This exportation quota for Italy was an exception in the cartel policy because Italy was the only country in which production wasn't reduced during the international crisis after 1929. The Italian production was after 1929 bigger than national demand and this surplus risked destabilizing the international aluminium market. From 1930 to 1934 international cartel bought Italian surplus and sold it in international market or created stocks. In 1934 cartel policy for Italy terminated and for the country started a period of development of internal demand, driven by the government. Aluminium, in fact, became a very important axis of Italian economic policy and warfare and the necessity for aluminium drove the Government to take some measures to develop production and consumption.

This paper will present three different phases of history of aluminium industry in Italy. In the first phase (1925-1929) Italy began like an importer country then in 1930 changed to being an exporter (1930-1934) and in the final phase (1935-1943) tried to be self-sufficient and Government developed a policy to increase aluminium consumption and production. Not only was the Government strategy crucial in these changes, but, more importantly, the attitude and strategy of international cartels to Italy. International leading companies invested in Italy in order to increase their position before the signature of cartel; then when they settled a cartel in 1926, they use Italy like a tool against American Company. Finally, on reaching an agreement with Americans in 1931, they tried to change another time policy for Italy. However, in this strategy international companies have some difficulties controlling the emergence of Montecatini that was an uncomfortable allied for the cartel. Furthermore, in 1935 Government began to develop an active policy for aluminium and this policy started only after that the international cartel interrupted his activity in Italy. Thus, the Italian production lost the advantages enjoyed by international agreements. The end of cartel for Italy drove the Italian companies to ask the government for support to develop them. Consequently, the government substituted itself for the cartel in order to guarantee consumption and the fixation of prices. In 1937 a plan for development was introduced, which included strategies to find capital to invest in aluminium and alumina plants as well as in energy producing to supply aluminium plants. The purposes of Government did not arrive at its goal for many reasons but they affected the development of this industry. The experiences of the aluminium industry in Italy demonstrate how and why a powerful international cartel ceased to control a national industry and the relationship between an international economic structure, a national powerful enterprise that want to grow nevertheless the international cartel and a Government who want to aid a national company. In the case of aluminium the Government also had its own aims of substituting importation for strategic needs. This aspect renders the history of aluminium industry as being more complicated because it was not a question of simply national interest against international power, but a game with three actors who had different needs and aims.

This paper will first examine the international investment phases followed by the cartel attitude for Italy until 1934. Finally, it explores the effects of autarky on the Italian aluminium industry. An analysis of some aspects of international cartelization and the new comers or outsiders and the intentions of Government in the development of an industry 'against' an international cartel. In reality, Italian Government policy never was directly against international cartel, but was implemented when international cartel 'gave up' Italian production because it became unnecessary or undesirable.

1.The pre-cartel investments of the Mid-Twenties: Internationalization and Diversification.

From 1918 to 1925, Italian aluminium industry started production thanks to investments from Aluminium Français and Alcoa. But some uncertainties of Italian economy of two investors provided an opportunity for Montecatini that started a plan for producing aluminium with the technical help of Vaw.

The first aluminium plant in Italy was the Società Italiana per la Fabbricazione dell'Alluminio (SIFA), built up in 1905 in Bussi, when the high prices of first aluminium international cartel took an opportunity for diversification to Società Italiana di Elettrochimica (SIE), an electrical and chemical producer that wanted to find additional outlets for energy[1]. To ensure good profitability of production SIE also bought some bauxite ores in the Abruzzi and built up an alumina reduction plant[2]. This society was owned by Lorenzo Allievi, the president of SIE, and by a German merchant - metal firm, the Sondheimer & Beer[3]. This little firm, with a capacity of production of about 600 t per annum, later adhered later to the international cartel in 1912 and Allievi became the "aluminium-man" in pre-war Italy.

With the Great War, the German shareholders were alienated and the Aluminium Français and Bouchayer & Viallet[4] took their shares in Allievi's enterprise. The Italian Governement set up a war syndicate for aluminium in which Aluminium Français was charged to build up an aluminium plant in Nera Montoro alongside Allievi for supplying the war demand[5]. This collaboration between Italian government and French enterprises made possible the construction of Alluminio Italiano, which was officially an affiliate of Aluminium Français[6]. Thus, after the war Aluminium Français had a good position in Italy and trusted to develop the Italian aluminium production through the construction of a new plant in Borgofranco, near Aoste. However, the years between 1919 and 1922 were very difficult for the Italian economy and that heavily affected aluminium production. The presence of war-stocks and the general crisis of demand lead Aluminium Français to cease production at the Italian plant and to attend before new investments in productivity[7]. After the crisis in 1921-22 the Italian market had a great

[1] Maurizio Rispoli, *L'Industria dell'Alluminio in Italia nella fase di introduzione. 1907-1929*, in "Annali di Storia dell'impresa" n.3, anno 1987, pp. 281-322

[2] Assemblea Generale della "Società Italiana per la Fabbricazione dell'alluminio", esercizio 1905, 1906, Rome. The bauxite ores were in Lecce dei Marsi, at 100 km from Bussi plant.

[3] Idem, in the list of society board's members we find Nathan Sondheimer, Spyr Alioth and Gustav Bierman. About Allievi, some informations are in Luciano Segreto, 'Imprenditori e Finanzieri', in Girogio Mori (editor), *Storia dell'industria elettrica in Italia*, vol.1, *Le origini. 1882-1914*, Roma-Bari, Laterza, 1994, pp.117-8.

[4] About Bouchayer's family and fortune see Robert J. Smith, *The Bouchayers of Grenoble and French Industrial Entrerprise, 1850-1970*, The John Hopkins University Press, Baltimore and London, 2001.

[5] Archives de Riotinto Alcan in Paris (ARAP), 056-00-12349, 1921 Società Idroelettrica Vileneuve et Borgofranco, Turin, Contrats de Vente et Location, Fournitures d'aluminium au Governament Italien (1916-1918), and ARAP, 056-00-12347, Reunion Société de Villeneuve et Borgofranco, 2 Febraury 1921.

[6] ARAP, ibid. In this affair there was involved also Bouchayer and Loucher – Gyros, who were called to construct the hydroelectric plant for the energy. After the war Loucher – Gyros liquidated its interests and Bouchayer consolidated his position in this society. See also D. Barjot, "Le role des entrepreneurs de travaux publics: l'exemple du groupe Giros et Loucheur (1899-1946) in Monique Trédé-Boulmer (editor), *Le financement de l'industrie électrique, 1880-1980*, Association pour l'Histoire de l'Electricité en France, Paris, 1994.

[7] ARAP, 056/00-12347, cart. 1906 à 1929 SAI Historique et renseignements generaux sur la société, Borgofranco.

development and this development encouraged a great importation. See Table.1.1:

Table 1.1. Production, Consumption and Importation in Italy, 1920 – 1928, in metric tons.

Year	Production	Consumption	Importation	% Prod.	% Imp.
1920	1,200	2,000	-	85.00	-
1921	700	1,000	-	70.00	-
1922	800	1,000	200	80.00	20.00
1923	1,473	3,323	1,977	44.32	55.68
1924	2,058	4,961	2,947	41.48	58.52
1925	1,880	8,506	6,693	22.10	77.90
1926	1,929	5,445	3,566	35.42	64.58
1927	2,544	5,846	3,617	43.51	56.49
1928	3,618	5,141	1,760	70.37	29.63
1929	7,036	10,113	3,284	69.57	30.49

Sources: From 1923 to 1929, De Stefani (passim), from 1920 to 1922, Metallgesellschaft yearbook, various issues. During 1920-1921, the difference between production and consumption was covered by war-stocks. See note 7.

Except 1925, when the lira had a very low value, the medium of importation for 1922-1928 was 4,000 tons[8]. In 1925, Italy imported almost the 78% of demand in aluminium (see the Table 1.1). This importation was driven by the lack of production to satisfy the growing demand for aluminium. The needs of Fiat and the automotive industry, of railroads and of electrical productions pushed the big companies to increasingly import more in Italy[9]. This importation caused three major reactions: 1) the Italian government attempted to avoid and reduce this importation, started to dialogue with Aluminium Français and to raise the customs duties for aluminium; 2) Aluminium Français, the only big producer in the country, tried later to develop the plant in Borgofranco, and to re-organize the investment as a whole in collaboration with Allievi, but without achieving its goal; 3) aluminium, with its great demand, became a good opportunity for diversification for some hydro-electrical and chemical enterprises. Montecatini was one of those enterprises.

Nevertheless with the pressure of Italian political power to expand production and the increase of duty on alumina and aluminium in 1921, Aluminium Français played for time from 1922 to 1924. In this period, the French investors tried to assess if the increased demand was durable as well as problems with the Treasury. The problem of 'war-profit taxation', created an uncertainty in the possibility of investments[10]. Therefore, from 1921 to 1924 Aluminium Français did not develop and only in 1924

[8] ARAP 056-00-12347, Procès-verbal de la réunion du comité de direction de l'Alluminio Italiano, 19 March 1928.

[9] ARAP, 056-00-12347, Conseils d'administration, comptes rendus des activités, Alluminio Italiano et St. Hydro-Electrique de Velleneuve et de Borgofranco, procès-verbal Réunion de 20 mars 1923 and Ibid. Note sur l'industrie de l'Aluminium en Italie, 21 Juin 1924.

[10] ARAP, 00-15-20452, Italie, Società Idroelettrica di Villeneuve e di Borgofranco, rappel historique 11 mars 1943.

began the studies for the enlargement of Borgofranco. AF engaged in a contact with Alcoa to share the Aluminio Italiano with the American Trust who accepted to invest in Italy in order to develop its policy for Europe: Alcoa bought 50% of shares of Alluminio Italiano and supported the investment of 30 million Lire to increase the capacity of production of Borgofranco (from 1,500 tons per annum to 2,200)[11]. This collaboration between AF and Alcoa appears very strange because in the mid Twenties Alcoa was the greater antagonist of European Companies negotiating to set up a cartel.

In 1921 Alcoa started a strategy to buy and control a great part of bauxites ores of Istria, a region that became Italian after the Versailles treaty[12]. AF was indeed near Alcoa and attempted some approaches and shared, beyond Alluminio Italiano, some other companies with the Americans in Norway and Spain[13]. Those operations were conceived by French company that approached other leading companies in order to arrive at a cartel agreement[14]. A second motivation for asking the participation of the Americans was the lack of money of Alais Froges and Camargue, the proprietary of Alluminium Français, weighted down by investment in electricity plants[15]. However, this investment was not enough to cover the total demand of Italy and it was very incomplete: there was not a medium-term plan to increase electrical power and nor any plan to produce alumina. Furthermore, the plant in Borgofranco was difficult to enlarge because of its geographical location thus the only chance to increase aluminium production was to build another factory elsewhere[16]. In the meanwhile, some other initiatives started with the idea to cover all national aluminium needs and to stop the importation.

In 1925 Montecatini let known its intentions to invest in aluminium production[17].

[11] ARAP, 056-00-12348, “AI 1924-25”, Pourparlers avec Aloca, Versements aux Américains.
[12] Archivio Storico Banca Intesa (ASI), BCI, 6. Archivi Aggregati, Società finanziaria industriale italiana (Sofindit), Archivio Sofindit, Presidenza e Direzione, SOF 327, fasc.5 (società diverse), Sfac. “l’alluminio Italiano”, 1937, and Piero Scotti, *Geografia dell’alluminio italiano*, edizioni lupa, Genova, 1948, pp.9-14.
[13] Marlio wrote that Aluminium Français shared his Italian plant with Alcoa “dans le désir de bonne entente internationale et pour continuer la politique de ces dernières années, il offre à ses collègues Américains une participations analogue à la participation norvégienne dans des nouveaux agrandissements; il lui parait d’ailleurs qu’il serait peut-être utile de réserver également une part à d’autres collègues directement intéressés au marché italien par leur voisinage et par les importations qu’il font à ce jour sur ce marché”, in ARAP, Ibid, “accords commerciax”, document without title, 1925. AF shared with Alcoa also a factory in Norway and one in Spain, with the same modalities of the Italian affair.
[14] Florence Hacez-Leroy, *L’Aluminium Français. L’invention d’un marché, 1911-1983*, Paris, 1999.
[15] BARJOT (Dominique), « Le financement des entreprises de production. Distribution de l’électricité de 1919 à 1946 », *Bulletin d’histoire de l’électricité*, 1995 (juin, n° 25), pp. 5-49
[16] ARAP, 056-00-12348, “AI 1924-25”, Pourparlers avec Aloca, Versements aux Américains.
[17] Franco Amatori, Bruno Bezza (editors), *Montecatini, 1888-1966. Capitoli di storia di una grande impresa*, Il Mulino, Bologna, 1990, pp. 40-42.

After the Great War, Montecatini started a phase of expansion and invested in electrochemical and in hydro-electrical energy for production of azoth and synthetic ammonia. The chemical enterprise would exploit the rising Italian market, which was satisfied by importation, and thought to be an augmentation in custom rights[18]. That worried the American-French investors because they knew the financial power of Montecatini, its political influence and its nearness to the big Italian banking interests[19]. The situation in the short term was aggravated by the Italian economic policy called 'quota 90'[20]. This policy of revaluation of Lira caused a lot of problems for the Italian aluminium market because 'quota 90' slowed down the consumption of Italian consumers, which was accumulating stocks, and positioned Borgofranco in a negative position in report of importation, especially from Switzerland[21]. Thus, the French-American company suffered greatly for the conjuncture of the mid-twenties and it lost the opportunity to raise a monopoly in Italy for the production of aluminium. In fact, in the period 1926 to 1928 the situation of the Italian Aluminium industry changed radically and some new companies became the most important producers in Italy, surpassing Alcoa-AF. While AF and Alcoa continued to study the augmentation of capacity of Borgofranco and understood the importance of having an alumina factory, Montecatini continued its plans in aluminium production and acquired the patent for alumina production to Vaw (the "Haglund" patent) and a third investment added to its list.

On the 7th December 1926 the Aluminium Aktien Gesellschaft (AIAG) and an Italian group of producers of electricity, represented by Marco Barnabò, set up the Società Alluminio Veneta Anonima (SAVA) in Venice to produce alumina and aluminium[22]. Sava gained a great part of the production of the alumina factory of Bussi and took control over it with the co-operation of Allievi: Bussi was an alumina plant that was not very profitable but delivered the alumina for AI and produced a little quantity of aluminium (see Table 1.2). An agreement between Sava-Aiag and Bussi provided that Bussi shipped all its alumina produced to Sava and ceased its production of aluminium when Sava started to work in 1929. Montecatini and SAVA, in fact, planned to be able to begin the aluminium production in 1929 when factories would be

[18] The Italian custom barriers for aluminium was settled up for the first time in 1921, idem.
[19] Ibid, pp. 39-40.
[20] ARAP, 56-00-12348, Note sur le prix de revient de l'usine de Borgofranco, 1926. About "quota 90", see the classic Guadalberto Gualerni, *Industria e Fascismo. Per une interpretazione dello sviluppo economico italiano tra le due guerre*, Vita e pensiero, Milano, 1976, pp. 48-52.
[21] ARAP, 56-00-12347, Note sur la situation italienne, cit.
[22] Maurizio Rispoli, *L'Industria dell'Alluminio in Italia*, cit., p. 311.

completed[23]. Louis Marlio, chairman of Aluminium Français and president of the international cartels since 1926, understood the problems for Italy. In 1929-30 the total capacity of production was envisaged as 10,000 tons or more while the consumption was only 6,500[24]. The major problem for Aluminium Français was the impossibility to develop Borgofranco and the absence of a good alumina plant in its control. Although it began some studies about an alumina plant to be built in Genoa or in Savona, in 1928 it was too late to build a new alumina plant when two other companies had just take control over the major part of production[25].

At the end of 1928 Aluminium Français took the decision to divest and leave Italy to concentrate its international investments in other countries such as Spain, Norway and Est-Europe[26]. The Alluminio Italiano of Borgofranco passed to Alted, the Canadian subsidiary of Alcoa, who started to develop an alternative patent for alumina, to use leucite instead of bauxite. The 'Blanc' patent was deposed in 1922 in Italy by an Italian chemist, the Baron Luigi Blanc, and its aims were to produce potassium salts and alumina from leucite, a mineral abundant in the centre of Italy and more economic than bauxite[27]. The 'leucite affair', like Duncan Campbell called it, was seen as a great opportunity by Alcoa and by Italian Government because this patent would produce fertilizers for agriculture (for which there was a great demand in Italy) and alumina, both in a low cost way[28]. Alcoa formed a contact with Blanc in April 1928 and decided to buy the patent and the little pilot plant in anticipation of Montecatini and other European companies[29]. In reality, Montecatini and Aluminium Français did not want to buy the patent because, after having tested it, they judged it not competitive[30]. In despite of which the little consideration the Blanc process had in Italian economic *milieux*, government and Alcoa trusted in this patent and in its aims to produce alumina from leucite in a competitive way. Alted (the subsidiary of Alcoa that manage all international investment of American enterprise) settled up a large experimental plant in Aurelia

[23] ARAP, 56-00-12347, Note sur l'industrie de l'Aluminium en Italie, 21 Juin 1924
[24] ARAP, 056-00-12347, Cart. CdA, Alluminio Italiano, Reunion du 19-03-1928.
[25] idem. This location was desirable for importing at a lower cost the carbon necessary to the Bayer process for alumina.
[26] To conclude the affair with the Americans, Aluminium Français chaged his shares in Alluminio Italiano with the American shares in Aluminio Espanol (AEs): after this operation AI was totally American and AEs was in majority French with a participation of AIAG. See René Bonfils, "Pechiney en Espagne, 1925-1985" in *Cahiers d'Histoire de l'Aluminium*, n.38-39, 2007, pp.77-92.
[27] About this aspect of Alted's history, see Duncan C. Campbell, *Global Mission. The history of Alcan, vol. I to 1950*, Toronto, 1990, pp. 222-226.
[28] Idem.
[29] Idem, pp. 223-4.
[30] ARAP, 056/00-12347 Borgofranco, cart. 1921/28 Conseils d'Administration, cit, 28-01-1928 e Archivio Storico Banca d'Italia (ASBI), Carte De' Stefani, cart. 22 fasc. 7, sfasc 42.

(near Rome) in 1931 with the help of Government and endeavoured to produce alumina and potassium economically, but in 1938, after successive failures, the decision was taken to convert the plant to Bayer patent[31]. Subsequently, this plant did not start any production for aluminium industry, was closed and Alted removed his investment. The bad choice of patent had frustrated the Italian policy of Alcoa that, for waiting to have an alumina plant in Italy, did not develop Alluminio Italiano of Borgofranco that rested a very little plant[32].

The two largest aluminium factories were Sida and Sava, respectively owned respectively by Montecatini–Vaw and Aiag. The collaboration between Montecatini and Vaw is unclear, but it appears that the two companies found some common interests to develop a relationship in Venice. Montecatini was the largest chemical industry in Italy and one of biggest enterprises overall in the country during this period. The company wanted to find an outlet for its production of electricity and a way for converting a plant of synthetic ammonia, the Sila[33]. Donegani, the chairman of Montecatini, found the collaboration with Vaw that would develop a new patent for alumina, called Haglund[34]. At the same time, Vaw controlled some bauxite ores in Istria (near Venice) through the Bauxitrust and considered it profitable to build an alumina plant near the ore to export in Germany a part of production[35]. Thus, Vaw gave its technical help to Donegani for producing aluminium and alumina and the German enterprise took 50% of shares in the aluminium company, the SIDA of Mori, and in a new and alumina company, called SIA (Società Italiana Allumina). The capacity envisaged for Sida was 6,000 tons of aluminium per year, and 15,000 of alumina.[36]

Sava, had a similar history, but the weight of Italian interest was less than in Sida because Sava was an Aiag's subsidiary. Marco Barnabò was the chairman of some plants generating hydro-electricity.[37] Bernabò took the decision in 1925 to search a new outlet for his electricity with the construction of an aluminium plant in Porto Marghera,

[31] D. Campbel, *Global Mission*, cit. p. 226.
[32] ARAP, 00-15-20452, Doc. Italie 1927-1952, L'industrie Italienne de l'Aluminium, 14 février 1950, p.7.
[33] Montecatini, 38th annual report, 1925.
[34] Vereinigte Aluminium Verke Aktiengesellschaft zu Lautawerk, Geschäfts – Bericht Über das sechste Geschäftsjahr vom 1 Januar 1926 bis 31 Dezember 1926, Berlin, 1927. (Vaw – GJ).
[35] ASI, BCI, 6. Archivi Aggregati, Società finanziaria industriale italiana (Sofindit), Archivio Sofindit, Presidenza e Direzione, SOF 327, fasc.5 (società diverse), Sfac. "l'alluminio Italiano", 1937 and ASI, BCI, 2 Amministratori Delegati, Segreteria Toeplitz, CPT, 48/439-478, telegram of Hiller to Toepltz and of Toeplitz to Hiller.
[36] Ernst Rauch, *Geschichte der Huttenaluminiumindustrie in der westlichen Welt*, Dusseldorf, 1962, pp.75-78.
[37] Rolf Petri and Maurizio Rebershak "La SADE e l'industria chimica e metallurgica tra crisi e autarchia" in Giuseppe Galasso (editor), *Storia dell'Industria elettrica in Italia, Vol. 3*, *Espansione e oligopolio*, 1926-1945, Laterza, Roma–Bari, 1994, pp. 760-1.

near Venice, exploiting the state's subventions for the development of so-called 'industrial zones'[38]. In 1926 with the help of Aiag which underwrote 70% of Sava's shares, Barnabò had the technical assistance to build his aluminium plant[39]. Prior to his interest in aluminium, Barnabò also had other interests in light metals in order to find a profitable outlet for his electrical production. He owned a zinc production plant and his strategy in both in zinc and aluminium production, seemed to be only create as an outlet for electricity. The Swiss company started a strategy of penetration in Italy in 1922, when it took the control of a company called Montanistica with the permission to build a hydroelectric plant and it also obtained permission to build an industrial plant in the new industrial zone of Venice (Porto Marghera).

Before 1926, Aiag was also a great importer in Italy, and its products well placed in the Italian market[40]. This operation consented to Aiag forming a contact with the Italian industrialists like Barnabò and this was beneficial to the Swiss company[41]. Aiag, instead, had a worse position in the Twenties than in pre-war period when it had a great role in the European market. Before 1918, Aiag was the leader of the international cartel and its production was exported to Germany, one of largest outlets in pre-war Europe, because the Swiss market was too little for her production. The war transformed this situation because the creation of Vaw narrowed substantially the possibility for exportation in Germany of Aiag that lose its main outlet. Furthermore, the instability of the international market and the rise of custom barriers made it impossible for an export-oriented company like Aiag to continue its pre-war strategy. So, Aiag began to expand little quantities into Germany, in Spain and, finally, Italy[42]. As in the case of Vaw, two groups (one Italian and one international) had conceived a common strategy that could be beneficial with some connected issues.

This new situation in the Italian aluminium industry created a great change in balance between production and exportation That situation endured up until 1934, when another major transformation modified the structure of Italian ownership and production. See at the Table 1.2:

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[38] Idem and R. Petri, "L'Industrie italienne de l'aluminium à la veille de la Seconde Guerre Mondiale" in Ivan Grinberg and Florence Hachez-Leroy, *Industrialisation et société en Europe de la fin du XIXe siècle à nos jours. L'Age de l'Aluminium*, Armand Colin, Paris, 1997, pp. 143-152.

[39] ASI, BCI, 6. Archivi Aggregati, Società finanziaria industriale italiana (Sofindit), Archivio Sofindit, Presidenza e Direzione, SOF 327, fasc.5 (società diverse), Sfac. "l'alluminio Italiano", 1937 and ASBI, cart. Sconti, scart. Pratiche, fasc. 580 sfasc. 1, "Venezia, 1935-38".

[40] ASI, BCI, Sof, cart.327, fasc.5, "L'alluminio Italiano. Nota sulle società per l'industria mineraria e per la metallurgia.

[41] Direktorium der AIAG, *Geschichte der Aluminium Industrie Aktien Gesellschaft, 1888-1938, Band II*, Chippis, 1943, pp. 61-67 and 87-88.

[42] AIAG, *Geschichte*, cit. pp.78-90.

Table 1.2.Production of Italian Aluminium Plants, Italian demand, Importation and Exportation, 1926-1934, in metric tons.

Year	SIFA Allievi	Alluminio Italiano (Alcoa*)	SIDA Montecatini Vaw	SAVA Bernabò Aiag	Tot. Production	National Demand	Import.	Export.
1926	817	1,112	-	-	1,929	5,000	3,780	137
1927	956	1,588	-	-	2,544	5,200	4,226	252
1928	993	1,355	70	1,200	3,618	4,000	2,166	311
1929	815	1,168	4,000	1,390	7,373	9,300	3,520	270
1930	-	1,309	4,870	1,789	7,968	8,200	1,543	710
1931	-	1,060	5,900	4,146	11,106	7,000	1,698	3,018
1932	-	1,288	6,062	6,063	13,413	5,500	410	2,485
1933	-	1,521	4,444	6,106	12,071	7,000	274	3,947
1934	-	1,647	4,899	6,310	12,856	9,400	225	5,933

* until 1928 Aluminium Français – Alcoa.
Sources: For the first 5 columns Riccardo Innocenti, *L'industria dell'alluminio in Italia. Un profilo storico.1907-1943*, Dissertation of University of Florence, 1983-1984[43]; for the third, Metallgesellschaft yearbook, various years. For the last 2 columns: ASBI, Consorzio sovvenzioni industriali, Sede principale, p.n.73, f.2

Italian production was higher than national demand, and a crisis of overproduction, as anticipated by Louis Marlio in 1927, occurred in 1931 and became more acute in 1932. Thus, the Italian aluminium industry organised itself into a national cartel, called ASA (Alluminio Società Anomina) where Sida and Sava (without AI-Alted) fixed quotas of production and prices[44]. However, national cartel did not redress Italian industry from overproduction: the international cartel and two companies' member (Aiag and Vaw) 'rescued' the Italian market according a growing quota for exportation. This measure was contrary to that of the cartel policy in a period of crisis, because it did not restrain production and consent to Italian companies to produce at the scale ratio while all the other countries controlled their production. This 'rescue' gave some advantages for Aiag, which found a method to enlarge its production, and was greatly exploited by Donegani, who enlarged his interest in aluminium. Vaw, left the Italian market in 1934 and lost a lot of money because of some problem with the Haglund alumina patent. So in the international cartel the Italian companies did not have a clear position and were a kind of 'semi-outsiders' but with great advantages. This paper will now move on to explore the international cartel relations that produced this result.

[43] This dissertation is one of more completed source for statistics of Italian Aluminium Industry. Dr. Innocenti has pieced together different statistical sources and created a very completed database. I wish to thank Dr. Innocenti for having give me the opportunity to read his work.
[44] Archivio Edison in Corsico – Milano (AE), Pratiche societarie, ASA, "Alluminio Società Anonima", verbali del consiglio d'amministrazione.

2.Italian Production and International Cartels. From take-over to 'isolation', 1928-1934.

In 1925-6 when the Italian companies were only conceived, Aiag, Vaw and AF were negotiating the setting up a European cartel and Alcoa was the biggest danger for those companies. For such a reason, Italy was a kind of 'battlefield' for international companies that wanted to assure a good position in the negotiation. Aiag was losing its international markets because of problems in international commerce in the Twenties and Vaw wished to try a new patent and produce alumina in lieu of imported bauxite in Germany. Alcoa also wanted to find a new patent for alumina, and this competition for patent was one of the major aims of competition in the Twenties. Furthermore, in order to compete, these three companies were expanding internationally to seize the best bauxites ores in Europe. For such reasons, the three producers had been enlarging their affairs in Italy since the beginnings of Twenties.

When these projects started, a new international cartel was settled. In fact on the 11th September 1926 the contract for Aluminium Association was signed in Paris by Aluminium Français, British Aluminium Company, Aiag, Vaw and two German companies near to Vaw (Erft-Werk AG and Aluminium-Werk AG) and Alcoa rested out of this agreement[45]. After some agreements over price and particular exportation market led since 1922, the stabilisation of the economic and political situation in 1926 encouraged the emergence of international cartels, like the aluminium one[46].

The Aluminium Association was created to avoid over-production and regulate the international markets after a period of investments, expansions and inflation in the first half of the Twenties that caused some problems of overproduction[47]. Italian plants were part of this general trend of expansions and investments. Since 1923, Alluminio Italiano was represented in the meetings of the European producers and it had two delegates into the carte board[48]. So, this company followed resolutions and other agreements taken in the "pre-cartel" meetings, and the presence of these companies in Italy make possible the importations in 1922-1926[49]. Furthermore, AF assigned to AI and SIFA a quota of

[45] ARAP, 00-2-15940, Recueil de conventions, Contrat de 11/9/1926 (3e Cartel).
[46] F. Hachez-Leroy, "Strategie et cartels internationaux, 1901-1981", in I. Grinsberg anf F. Hechez-Leroy (ed.), *Industrialisation et sociétés en Europe*, cit., pp. 164-174, Louis Marlio, *The Aluminum Cartel*, The Brookings Institution, Washington DC, 1947 and Donald Wallace, *Market Control in the Aluminum Industry*, Cambridge, Harvard University press, 1937, pp. 299-301.
[47] Louis Marlio, *The Aluminum Cartel*, The Brooking Institution, Washington DC, 1947, pp. 21-24.
[48] ARAP, 00-2-15940, Reunions diverses de 1923 à 1926.
[49] Idem, Procès-Verbal de la réunion tenue à l'Aluminium Frnçais, 12 rue Rocquépine à Paris, le 6 Juillet 1923.

1,800 t per annum, taken from the French quota in the Aluminium Association, and AF preferred to import into Italy instead of produce there[50].

Despite of the membership international owners of all Italian factories in the Aluminium Cartel and the presence of Alluminio Italiano in the meetings before 1926, the production of Italy did not have a clear position in report of membership into the cartel settled in 1926. Sava was under the control of Aiag, Vaw had 50% ownership of Sida and AI was in the hands of Alted and before 1928 was 50% controlled by Aluminium Français. The cartel contract, in fact, was limited and did not provide for anything concerning the participation and role of foreign subsidiaries for cartel members. The members of the cartel could take a participation in some outside companies, but they had to ensure the control of those companies (over the 50% of share)[51]. To avoid the emergence of powerful outsiders in those countries where demand was starting but there was no national producer, the Aluminium Association wanted to control the new companies through its member companies investments. The strategic importance of aluminium represented a great risk because a lot of countries wanted to equip themselves by such production. Cartel aims were to avoid outsider's control of new production.

Among the three Italian companies, only Sava was an 'authentic' subsidiary of a cartel member (Aiag) and Sida connected to Vaw with a supplementary agreement about alumina furniture, exportation and technical assistance that ensure the German control in this company. However, the German group did not own the majority of shares[52]. In 1928 AI was a subsidiary of a non-member of the cartel, Alted, which only went into the cartel agreement in 1931. The situation in 1926 was not defined because the two new Italian companies were not as yet producing, and, for that reason they could not have any engagement with the cartel. However, Aiag and Vaw tryed to take over the control of those two companies in the meanwhile.

The aim of the cartel was not to avoid any new comers but to ensure that a new producer became a threat to the Aluminium Association and its market. Consequently, the strategy for all new plants in new countries, like Italy, was to collaborate with them, control their development, fix the prices and avoid an over-production or destabilization of the international market. In many case, like in East-Europe, the main strategy was to

[50] Idem, Recuil de Conventions de 1910 à 1923, convention entre les sociétés suivantes: Aluminium Français, la compagnie de Produits Chimiques et Electrométallurgiques Alais, Froges et Camargue, Ugine, Aluminium du Sud-Ouest, l'Electro-Métallurgie du Sud-Est, L'Alluminio Italiano.

[51] ARAP, 00-2-15940, Recueil de conventions, Art. 31 of Aluminium Association's contract of 11/09/1926

[52] ASI, BCI, Sof, cart. 327, fasc.5, "L'alluminio Italiano. Nota sulle società per l'industria mineraria e per la metallurgia".

convince the Government, who wanted aluminium for strategic reasons to create a stockpile instead of starting production. Furthermore, Italian demand for aluminium justified the enlargement of production. For Italy, the cartel found a sort of compromise between market control and free development of plants and it achieved this aim only partially.

Decisions during this period (1928-1929) had a number of consequences that affected the history of Italian aluminium industry. In 1926 the cartel and the Italian producers find an accord that agreed that in Italy the price of international cartel would be respected. This conclusion was taken to avoid a great reduction in price with regard to Fiat that was the bigger customers of aluminium in Italy and it was trying to dim aluminium prices. At this time AI was the only producer and Alcoa, that owned a part of it, assured the cartel that the price would be maintained[53]. After this, in 1927 Aiag let the associates know of its participation in Sava and that it had respected the contract of Association[54]. Vaw communicated to the other members about its agreements with Montecatini only in 1928 and affirmed that the procedure of the cartel contract was followed[55]. This information, given in cartel's board, did not create any negative reaction from the part of associated.

When the two new plants were in operation in 1929, the cartel members started negotiations to regulate the relations between those companies and cartel, through the fixing of production quotas and balancing between importation and exportation in Italian Market. The associated also took the decision to take those quotas from their market share[56]. Nevertheless this decision and the tentative control of Italian production to avoid any exportation meant capacity of production was too large for national demand and the presence of Montecatini troubled the possibility to refrain production[57]. Donegani was considered very dangerous for international cartel, and some of the associated had the conviction that it would be preferable to exclude him from aluminium industry buying his shares in Sida. However, this solution was impossible to obtain because Donegani had some arrangements with the Italian Government for the production of aluminium. The cartel had to find a *modus vivendi* with the Italian chemical trust and started negotiations through Aiag and Vaw. Toward the end of 1929

[53] ARAP, 00-2-15940, Alluminium Association, Reunions du comité, 2e réunion, 15 octobre 1926.
[54] Idem, 5e Réunion, 29 juillet 1927. Aiag take the control of Sava, with the 70% of capital shares.
[55] Idem, 10e Réunion, 28 fevrier 1928. However, the art.31 of the contract wasn't respected because Vaw did not control Sida and Donegani had the control of this society. Metti anche il Vaw Jahre.
[56] Idem, 17e Réunion, 1929. The associated changed also the article 17 of the contract for take over the Italian production.
[57] AE, Servizio pratiche societarie,"soc. Montecatini", Sc.3 fasc. 5 SIDA, consiglio del 13/03/1931.

an agreement was arrived at when Sava and Sida settled the national cartel. Aluminium Association took charge to buy and export the surplus of production up to 2,000 tons for 1930 and assure that it would avoid any selling contract for importation in Italy. The price to buy of Italian aluminium was fixed at the price of Association less 5 gold £, that is 75£. This price was already profitable for Italian producers but was lower than the price that they could practice in the national market. Aiag and Vaw also assumed charge of the exportation of the surplus exceeding the 2,000 tons fixed. Furthermore, the two Italian companies had a right of production each one of 6,000 tons for 1930. This contract, highly profitable for Italian companies, was influenced by the fact that cartel members were at the peak of competition against Alcoa, and they want to give the pressure up in all European markets. In Italy, where Alcoa ha a lot of interest in research patent, in bauxite ores and in aluminium production, the cartel tried to use Italian production like a restraint for Alcoa[58]. Alluminio Italiano, in fact, did not take part in Italian Cartel (ASA – Alluminio Società Anonima) and this cartel was signed in between Bloch, Von der Porten and Donegani with anti-American intentions[59].

However, this agreement between AA and the Italian producers did not resolve the Italian situation and was to cause a great problem in the future for the cartel. The AA had taken charge to buy other 2,000 t also for 1931, and asked to Bloch, the chairman of Aiag (and Sava) to start a *pourparler* with the Italian producers to reduce their production and let know to Donegani that the cartel could not buy other tons for 1931[60]. So, while AA accorded an exportation quota for production surplus, Bloch and Von der Porten (the chairman of Vaw) were charged to assure that Montecatini did not enlarge its capacity to over 6,000 tons per year, with the wish to be able to refrain its production. Sava was treated in the same manner: it was obliged to not exceed a capacity of 6,000[61]. The aluminium cartel authorized Sava and Sida capacity to grow to 12,000 tons per year because that quantity corresponded to a prevision on Italian aluminium demand, and it was thought to be able to control the effective production because of the ownership of these two societies by a cartel member.

The attitude of Donegani was to not cut his production for three main reasons. First, he built an aluminium plant for the use of electricity in excess and a long period of inactivity would make it difficult to amortize the investments for the construction of

[58] ARAP, 00-2-15940, Récuil de Reunions, 20e Reunion, 19 et 20 décembre 1929.
[59] AE, Servizio pratiche societarie,"soc. Montecatini", Sc.3 fasc. 5 SIDA, consiglio del 13/03/1931 and idem, ASA, Libro Verbali Consiglio, N.7. 3 (Alluminio Soc. per Azioni), consiglio 22/03/1930.
[60] Idem, 27e Réunion, 16 janvier 1931.
[61] ARAP, 00-2-15933, Dossier Special, Sta Ital. Dell'Aluminio (sic) SIDA, 1930-1937, "Italie", 1931 and mail of AIAG to Donegani, 23/01/1930.

Mori. Unlike old companies, Sida had to amortize his plants in the short run. Secondly, he had some charges with the government and he could not stop the production and import. He foresaw a market for 9,000 tons in 1930, partially necessitated by cable for energy transport and the government asked Italian companies to cover the national demand and to overpass it in order to substitute copper in a lot of other applications. Third, the AI, now an Alted affiliate, did not participate in the national cartel and were a great competitor for ASA, importing some tons at a very low price. If Montecatini and Sava had reduced their production, their cost of production would have increased and capacity to resist to the American offensive greatly reduced[62]. So, the production in Italy couldn't be reduced by the international agreement because some aspects of the Italian market avoided it. Furthermore, someone on the cartel board had the suspicion that Bloch's attitude was to resist imposing control of Donegani because he expected to share the benefit of a high production in Italy and exportation through the Association.

Sava and Sida completed their plan to arrive to have a total capacity of production of 12 – 13.000 tons per year by 1930, and the Aluminium Association recommended to them to sell off their production in Italy and to require to give careful consideration to exportation. The contract, fixing a price lower than the international price of 1929, was considered really effective to discourage the overproduction. The contract duration endured until the 31st December 1934, and in order to avoid development of a dangerous outsider the cartel wished to assure a long alliance with Donegani[63].

The effects of crisis in international aluminium markets after 1929 aggravated the situation and the engagement of the cartel for Italian exportation became problematic for international markets. The agreement, which appears like a good compromise with Donegani in 1929, was in fact a condemnation for cartel during the crisis. From 1929 to 1931 the international aluminium industry accumulated over 100,000 tons of unsold stocks while the world demand was only 135,000 tons in 1932[64]. Not only over-production was due to the effects of the crisis, but also the result of the great competition between European Cartel and American concern at the end of Twenties. This conflict became increasingly harsher and it drove the two parts to not reduce production over the great part of markets in order to maintain their market position. The crisis meant Alted had to search to find a way to reach an agreement with the European

[62] AE, Servizio Pratiche societarie, "Soc. Montecatini", Sc.3, fasc. 5, SIDA, Conseil 16 dicembre 1929 and 23 marzo 1930.
[63] Idem.
[64] L. Marlio, *The Aluminum Cartel*, cit., p.37.

cartel, because its accumulation of unsold stocks was really worryingly[65]. Thus, in 1931 the European Cartel was reformulate and this time also Alted was included in the new association[66]. With the inclusion of Alted into the international cartel, one of main reason that drove to accord an agreement to Donegani ended, and in the new context the agreement of 1929 became very inopportune.

Alliance Aluminium Company, the new international cartel, was set up in Basel in 1931 and its main aims were to sell the stocks and redress the international market from over-production. This time, also Alted was a member of cartel that it can be considered a "world" cartel. To achieve its aims, the Alliance started to work like an international 'clearing house' that managed stocks, found markets and fixed prices. Alliance started to buy the entire surplus at a fixed price to lighten the pressure of overproduction on the international market and to discourage cartel members from superseding their quotas. At the same time, Alliance restricted production of all the associated, and for some periods the plants of cartel members worked only 50% and also 30% of their capacities[67]. That was the result of a strategy envisaged for Alliance: the right of production of each member was periodically fixed in response to the capacity of global demand. The major aim of Alliance was to adapt production with consumption trusting to sell off the accumulated stockpiles at the same time[68].

Those aims were not achieved for the Italian market because Italy did not restrict production neither while the Italian demand plunged. The agreement of 1929, guaranteeing a price for exportation of 75£ gold, was more profitable of internal price and more profitable also of the price that other cartel member could obtain. Thus, the agreement, signed for a medium term (5 years) ruined the balance of Alliance, which was obliged to buy for a profitable price the Italian aluminium. In fact, Aiag and Vaw bought metal to Italy for 75£, then stock-piled it and, as Alliance contract provided, they sold to Alliance for a lower price[69]. In some times, Aiag and Vaw re-exported the Italian production in other countries like Japan, China or Russia, fixing the respective quotas in the national Italian cartel, the ASA[70].

The crisis was really inopportune in report of the contract because when Italian

[65] D. Campbell, *Global Mission*, cit., cap.1.
[66] L. Marlio, *The Aluminum Cartel*, cit.; Stocking, "Alliance Aluminium", cit.; F. Hachez-Leroy, "Strategie et cartels internationaux", cit.
[67] Alliance's purposes were to buy the excess production and stock it at a price that couldn't give profits to the companies, but it could at the same time refrain the lowering of international market prices.
[68] L. Marlio, *The Aluminum Cartel*, cit. pp. 37-42.
[69] ARAP, 00-1-15933, Note Italie, (1931), The price varied from 70 to 55 £ gold.
[70] AE ASA, Libro Verbali Consiglio, N.7. 3 (Alluminio Soc. per Azioni), riunione del 22 Marzo 1930.

production arrived to cover the calculated demand of 1930 (9,000 tons), the demand fell down to 7,000 tons in 1931 and to 5,500 tons in 1932 (see the Table.1.2) and the surplus rose quickly. This growing surplus was bought by Alliance collectively and by Aiag and Vaw up to an average of almost 6,000 tons in 1934. The demand returned to 1929 levels only in 1934. Sida and Sava, through the contract of 1929, had the permission to produce 6,000 tons each of two, with the Aiag and Vaw guarantee that the difference between this production and demand would be exported. So, with the fall in demand in 1930-1934, the general balance of import-export for Italian aluminium was heavily transformed in 1931 and Italy became an exporting country instead of an importing one. The exportation from Italy was caused only by the international agreements, because their cost price wasn't as low as other countries and it did not permit to export in a competitive market[71].

In 1928-1929, when the production of Sida and Sava started, Italy stopped the massive importation of previous years, but in 1931 the importation stopped at all because those two plants arrived to complete their investment. See at Table 2.1:

Tab.2.1.Production and production capacity of Italians companies in report of Alliance Aluminium Cie, 1929-1933, in metric tons.

Enterprise's name	Production (P)				Production Capacity at 1/1/1933
	1929	1930	1931	1932	
Sava	2.000	2.000	4.000	5.000	6.000
Sida	4.000	4.877	5.900	6.232	6.500
AI	1.000	1.000	1.000	1.000	2.000
Total	5.000	7.877	10.900	12.232	14.500
Italian demand (D)	9.300	8.200	7.000	5.500	Foreseen
Difference P-D	-3.700	323	3.900	6.732	Demand: 7.000

Source: AHAR, 00-1-15933, cit.

The production of Sida and Sava, as noted in this table, was not restricted during the crisis and they reached almost maximum capacity of production because Sava and Sida reached an agreement with Aluminium Association in 1929, before the their investments were completed and before the overcoming of crisis. Those agreements were found not only in relation with the cartel, that took charge to export some excess, but also with Aiag and Vaw that engaged in the purchase of additional productions.

[71] The cost price of Italian Aluminium was in fact affected by an expensive alumina, in Sida and Sava both. Sava was buying, as we have seen, from Bussi, an old plant bad placed. Sida had a lot of problem with Haglund that caused a cost price more expensive than it was expected. AE, Servizio pratiche societarie,"soc. Montecatini", Sc.3 fasc. 5 SIDA.

When in 1931 Aluminium Association was established, Aiag and Vaw were obliged to buy from the two Italian companies unsold aluminium until 1934[72].

This contract and the absence of any regulation of Italian production in Alliance's foundation agreement perturbed the functioning of the cartel and keep Italy in a better position than other countries[73]. Italy did not take part into Alliance, which was formed the companies of Aluminium Association and Alted, and like Italian companies, other companies were considered as a 'semi-outsiders'. However, in the contract and in the negotiation of Alliance, the inclusion and participation of 'semi-outsiders' like Sida, SAVA and AI was envisaged as being in 1934.

After 1931, the cartel members did not lose hope of the chance to change the situation. This period (1931-1934) coincided with the hard core of the crisis: the Alliance perfectly knew that also a little quantity of out of control aluminium would cause heavy damages to world market and prices. Italy for this reason, with her 6,000 tons in surplus, risked becoming the Achilles' heel of the cartel. Thus, cartel members started to debate on the possibility of changing the attitude of Donegani and reduce his production and encourage him to enter into the Alliance.

However, Italian situation was too complicated to find an easy solution, and at last the Alliance played with the time until the end of 1934, when the Italian agreement end come to an end, and in the meanwhile it tried to place the excess in the international market. In 1932 Alliance charged E.K. Davis, the chairman of Alted, to find a compromise with Sida and Sava, but he could not arrive at a solution. There were three major reasons that impeded a solution. 1) The propriety assets of Italian companies; 2) the influence of Montecatini in Italian politics and finance; 3) the existence of a contract that could be rejected.

With regard to the first point we can consider that the three cartel members that invested in Italy developed an attitude anti-restriction for Italy. Aiag wished to exploit the occasion to have some assured sell off and to develop a production under a growing protected market. Vaw had a lot of problem with German demand and production and started to consider Montecatini like a very uncomfortable friend. With the crisis, German had great troubles in her balance of payment lacked international value to pay and invest. Vaw was obliged to stop the flux money to Montecatini and matured the possibility to exit from Sida and concentrate on only the German market[74]. Alted was in

[72] AE, Idem, SIDA, Riunione del Consiglio of 29/10/29.
[73] ARAP, 00-2-15938, Filiales et participations (1932-1939).
[74] In the meanwhile, in fact, German government started a policy for development of aluminium, and Vaw required having a growing quota since 1933. All additional quotas obliged Vaw to pay to Alliance a

trouble: it did not have an alumina plant and therefore depended on importation. All its efforts were concentrated on the leucite *fiasco* that seized a lot of resources. Secondly, Montecatini was a strong destabilizing factor in this context but understood that they could not stop Donegani from aluminium buying his shares in Sida. Donegani was 'protected' by the political power and his society was one of a major expression of fascist economy. Then, Donegani disposed of a great banking support for this operation: he did not ever have the necessity to sell his share and for Alliance there were never the possibility to propose they bought to Donegani[75]. His influence and his power made it impossible to have a positive arbitrage for cartel in an Italian lawsuit after the rupture of contract of 1929. For those reasons, Alliance did not trust to escape from its engagement[76].

The absence of any control over production of Italian plant was considered, with hindsight, a great mistake of the cartel. This weakness blunted its capacity of control over global overproduction. In a note about Alliance Aluminium of July 1935, Louis Marlio, the president of cartel and chairman of French Group, wrote a note about failures and achievements of Alliance[77]. Among the mistakes, he pointed out the incapacity to refrain the production since 1931, the incapacity to refrain German increase in production from 1933 and the Alliance attitude in regard of the "question italienne"[78]. The Alliance in fact, without regulating the Italian production, were obliged to buy the excess of production without that any constrain was given to the plants. In the period 1931-34 Italian plants took profit by the weakness of cartel, which had no power to control the Italian production and found itself with the hands tied by the agreement of 1929. However, in 1934 this situation took the end, and Italian production was isolated from the cartel that lost all reason to reach another agreement with Italy or

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reward that caused a lack on international values of this society. The great engagement of Vaw in the economic policy of Reich obliged the German Society to concentrate itself on the German Market and an affair as Montecatini started to be considered like inopportune because it required international values for buying surplus and for investing in development. Vaw, JB, Bericht des Vorstandes, Jahre 1935 and VAW Aluminium Zeitschirft, *Hauszeitschrift der Vaw und Erftwerk AG für Aluminium*, Berlin, year 1932 and 1933. About Vaw see Manfred Knauer, "Une industrie née de la guerre: l'aluminium en Allemagne de 1890 à 1950", in I. Grinsberg, F. Hachez-Leroy, *Industrialisation et sociétés*, cit, pp. 127-143 and

[75] At the same time, indeed, Alliance with the decisive help of British Aluminium Company (Baco), succeeded to buy a dangerous outsider and the lack of money and financial aid was the major reason of this succes for cartel. See D. Wallace, *Market control*, cit, p.164.

[76] ARAP, 00-2-15929, Notes sur la Conférence dell'Alliance Aluminium Cie des
6e reunion, 4/5-3-1932.

[77] ARAP, 00-2-15933, dossier special, Notes diverses sur l'Alliance Aluminium Cie, 1932-1944, "Alliance Aluminium Cie, juillet 1935".

[78] Idem. About the first two mistakes we cannot deepen here. About German quotas, see L. Marlio, *The Aluminum*, cit, pp.95-105; the incapacity in reducing overproduction was due to an optimistic fixation of quotas of production from 1931 to 1933 that obbliged Alliance to fix the production quota at the 30% of ration in 1933.

to drive Italian companies into the cartel.

3.The end of cartel exportations and the production expansion. The Autarkic period and the war demand.

In 1934, when the international cartel wished to avoid the expansion of Italian production and hoped to include the three companies in Alliance's shares, Sida was obliged to stop the production by a public authority's decree. This fact astonished the council of Alliance: the cause of decree was the pollution created by the production of Mori, judged very dangerous for the health of people and animals[79]. The impurity of Hanglund's alumina produced in Porto Marghera by SIA-Vaw was the cause of this pollution damage[80]. That induced three main reactions: Vaw gave up from Italy, Montectaini settled up an autonomous company and the Government launch a policy for aluminium.

Vaw and Montectaini started a litigation that ended with the dissolution of Sida and the liquidation of German interests in Italian production. After the liquidation, Montecatini settled a new company to manage Mori and a new alumina plant and called her Società Nazionale Alluminio (Snal). The alumina plant in Porto Marghera was converted into a pig iron one[81]. At the same time, the Government forbad the exportation of aluminium and took control of accumulate stockpiles and uses of aluminium in energy transportation[82].

The end of the contract between the cartel and the Italian producers as well as the rupture between Sida and Vaw signified the definitive exit of Italian production from international control. Up to 1934, cartel was 'pent-up' into agreements for exportation that is was considered as a big mistake of cartel. The cartel, in the other hand, had obtained that Italian capacity didn't grow, and up to 1934-5, the capacity production rested at the fixed level: 13,000 tons. After the exit from the cartel, Italy started an autonomous strategy for investments, pricing and marketing. The centre of development

[79] About this aspect of history, see Guido de Luigi, Edgar Meyer, Andrea Saba, "Industrie, Pollution et Politique: la "zone noire" de la Società Italiana dell'Alluminio dans la province de Trente (1928-1938)", in I. Grinsberg, F. Hachez-Leroy, *Industrialization et sociétés*, cit., pp. 314-323.
[80] Idem.
[81] AE, Sida, cit and ARAP, 00/15-20452 Italie 1927-52 Entretien de M. DOnegani avec M. Level, le 27 septembre 1935.
[82] ASI, BCI, 6.Archivi Aggregati, Società finanziaria industriale italiana (Sofindit), Archivio Sofindit, Presidenza e Direzione, SOF 327, fasc.5 (società diverse), Sfac. "l'alluminio Italiano", 1937.

became the ASA (Alluminio Società Anonima) the national cartel settled up in 1930 and in 1937 passed into the hands of the Corporazione della Chimica, a kind of state agency where was represented the interest of Aluminium producers. The decision making of investment passed from the hand of international companies, to the Italian companies, reassembled in cartel, and to Italian Government that, from 1932, had the right of authorizing or not the investment in industrial plants[83]. In this context, Sava and Montecatini resembled their interest and planned to enlarge their production following a common national strategy. In 1937, finally, this *corporazione* produced a 'Piano autarchico per l'alluminio' that foresaw a great augmentation of national consumption because Aluminium could become one of most important material in substitution of importation[84]. Thus, this plan calculated and co-ordinated the augmentation in aluminium production and in alumina and electricity supplies for such production. At this time, the decision to invest passed into a cabinet where private companies and Government stressed the axis of development. See the Table 3.1:

[83] Since 1932 in Italy there was a law about the regulation of industrial plants that provided that each company that would to build up a new plant or would to enlarge an old one, was obliged to ask the permission to the State Authority. This measure, taken for avoid overproduction after the crisis, gave to the Government a great power for helping near industrial groups. See. G. Gualerni, *Industria e fascismo*, cit., pp. 151-153.

[84] Archivio Thaon di Ravel – Torino, Fondazione Luigi Einaudi (ATdR), Corporazione della Chimica, *Piano Autarchico*, cit. and Silvio Golzio, *L'industria dei metalli in Italia*, Einaudi, Torino, 1942, p. 109. For some technical aspects of usage of aluminium and enlargement of his employs, see *Alluminio. Rivista tecnica del gruppo metalli leggeri della associazione nazionale fascista fra gli industriali metallurgici italiani*, various years and issues, from 1932 to 1939.

Table 3.1.Production Capacitiy, Production, exportation and national consuption of Italian Aluminium plants (SAVA, Montecatini and SAI), 1934 – 1943, in metric tons.

Year	Prod. Capacity	Total Prod.	Total Cons.	Export	Import	Prod. Montecatini	Prod.SAVA (Aiag)	Prod. IA (Alted)
1934	15,000	12,856	9,400	5,932	3	4,899	6,310	1,647
1935	-	13,776	15,000	6,087	203	5,089	7,002	1,685
1936	20,000	15,874	17,000	210	313	7,098	7,094	1,682
1937	28,500	22,947	26,000	-	3,366	13,220	7,984	1,743
1938	36,000	25,677	25,400	446	337	13,828	10,363	1,576
1939	39,000	33,963	32,900	1,166	169	16,744	15,047	2,172
1940	40,000	38,789	42,800	-	-	20,395	15,932	2,463
1941	50,000	48,195	59,100	-	-	26,722	18,537	2,936
1942	-	43,541	56,100	-	-	24,894	16,224	2,423
1943	-	46,192	52,600	-	-	28,163	15,889	2,140

Sources: Corporazione della chimica, *Piano Autarchico*, cit., R. Innocenti, *Profilo storico*, cit., Metallgesellschaft, varius years.

After a period of settlement between 1934 and 1936, Italy production started a substantial grow rate. Government policy became oriented to enlarge the consumption of aluminium in order to ameliorate its commercial balance that was troubled after 1935[85]. The Ethiopian war was another opportunity for increase consumption and found a quick and easy alternative to the cartel exportation and the SDN's sanctions made this policy more effective, avoiding aluminium exportation form Italy. Government policies were the greatest substitution for the cartel international agreement in the 1934-37 phases, and afterward affected an enormous growth of production. The policy of Government for Aluminium was to find a market for aluminium production in the period from 1935 to 1937 and only in 1937 the Government started to interest itself into production's problems. In fact, the new production of 1935-36 was totally required by the national market and for this reason Italy stopped to being a worry to the international cartel. Also in 1936 the cartel changed its policy: the market started to develop and the system of quotas and restriction were abandoned and producers became free to produce as much as they wanted[86].

Without international cartel quotas and the necessity to exportation, the autarkic Government policy became the greatest affair in the Thirties for aluminium companies in Italy. Aiag and Montecatini both developed side by side collaboration in Italian market and they set up the Lavorazione Leghe Leggere, the bigger transformation

[85] ASI, BCI, 6.Archivi Aggregati, Società finanziaria industriale italiana (Sofindit), Archivio Sofindit, Presidenza e Direzione, SOF 327, fasc.5 (società diverse), Sfac. "l'alluminio Italiano", 1937, and "I Consigli delle corporazioni e i problemi da discutere in sede corporativa", in *Alluminio. Rivista tecnica del gruppo metalli leggeri della associazione nazionale fascista fra gli industriali metallurgici italiani*, Roma, n.6, year 1934, p.326.

[86] See, L. Marlio, *The Aluminum*, cit., pp.46-59, the chapter "New basic agreement, 1936-1939".

aluminium plant in Italy. The production of LLL was used directly by the Army or was sold like a semi-worked aluminium product to habitual customers[87]. Those two companies and their transformation-factory enjoyed the possibility of some facilities to credit and the facilitate loans of Italian banking system[88].

Aiag started from February 1935 (2 month after the end of 1929's agreement) approached the government to build an alumina plant in Porto Marghera for a production ration of 30,000 tons per year with the option to rise up to 60,000 tons in a second stage. The strategy for AIAG was to stop alumina production in Switzerland and use Porto Marghera for exporting to her Swiss or German plants[89]. At the same time Bloch and Donegani consolidated their collaboration. In 1935, when Sia was liquidated and stopped, Aiag gave Montecatini the Bayer patent and started a strict co-operation for supply in alumina Sida (Snal after 1934)[90].

From 1935 Montecatini started a great development of his production. Side by side the alumina plant of Porto Marghera, Donegani started to build up a second aluminium plant in Bolzano, the Industria Nazionale Alluminio (INA), with an initial production capacity of 8,000 tons per year[91]. This expansion found a market in electrical materials and cables and a good outlet opportunity with the Ethiopian war of 1935-6. However, in 1937 the Government policy for aluminium changed, as anticipated. The Government started to request aluminium for make this metal an axis of its economic and strategic policy. The problem of balance of payment in the country, monetary difficulties and international commerce drove Italy to settle a policy of substitution of importation. Some national companies, like Montecatini, exploited this policy like an opportunity to invest and to diversification with the economic help of state and with the protection of higher custom duties[92].

The great interest for aluminium in the Italian political *milieux*, was the 'Chimera'

[87] AE, ASA, Libro Verbali Consiglio, N.7. 3 (Alluminio Soc. per Azioni).

[88] ASBI, Direttorio Azzolini, Cart.87, fasc.1, sfasc.1, Comitato Interministeriale per l'Autarchia, verbali della II riunione del 3 febbraio 1939 – XVIIo.

[89] ASBI, sconti, pratiche, cart. 580, fasc.1, sfasc. "Venezia 1935-1938", Andamenti delle attività economiche di venezia, 24 gennaio 1936, riferito all'anno 1935. See also, ASI, BCI, 3, direzione centrale, Ufficio Studi, Spoglio Bilanci imprese, faldone 5, cartella 31, Alluminio Veneto Anonima, 1936-72. See also Bruna Bianchi, "L'Economia di Guerra a Porto Marghera: produzione, occupazione, lavoro. 1935-1945", in Giannantonio Paladini, Maurizio Reberschak, *La Resistenza nel Veneziano. La società veneziana tra fascismo, Resistenza, repubblica*, Istituto veneto per la storia della resistenza, Venezia, 1985, pp. 167-169.

[90] ARAP, 00-15-20452, Italie, 1935, Relations entre AFC et Neuhausen, Question Italienne.

[91] AE sc.29 fasc. 54, Ina, Industria Nazionale Alluminio di Bolzano, see also F. Amatori, *Montecatini*, cit., pp.43-44 and ATdR, Corporazione della Chimica, *Piano Autarchico,* cit.

[92] There's a lot a litteraure about this subjetc. We advice two classical books: Felice Guarneri, *Battaglie economiche fra le due guerre*, Il Mulino, Bologna 1988 and G. Gualerni, *Industria e fascismo*, Vita e pensiero, Milano, 1976.

of the Blanc patent for production at the same time fertilizers and alumina. The Italian Government made a decision to develop aluminium demand and aluminium production that would be partly supplied by "leucitic-alumina". For this, the Government wanted to build up, side by side the three old plants, other 3 (A, B and C in the Table 3.2) plant using alumina taken prom leucite and open the old Allievi's Plant of Bussi. The Autarchic committee stressed a schema of increasing production capacity of each plant as noted in Table 3.2:

Table 3.2.Production capacity of 1937 and envisaged augmentation of Autarchic Plan, 1938-1942, in metric tons.

Plant:	Prod. 1937	Foreseen Max.Prod. Capacity 1938	Foreseen Max.Prod. Capacity 1939	Foreseen Max.Prod. Capacity 1940	Foreseen Max.Prod. Capacity 1941	Foreseen Max.Prod. Capacity 1942
Sava Porto Marghera	8,150	17,350	17,500	17,500	20,000	20,000
Snal, Mori	7,800	8,400	8,500	10,000	10,000	10,000
Ina Bolzano	4,700	7,300	9,000	10,000	10,000	10,000
AI Borgofranco	1,600	2,950	3,000	3,000	5,000	5,000
Tot. Old plants	22,250	36,000	38,000	40,500	45,000	45,000
A Leucite	-	-	10,000	10,000	10,000	20,000
Bussi (ex Allievi)	-	-	-	5,000	5,000	10,000
B Leucite	-	-	-	-	10,000	20,000
C Leucite	-	-	-	-	-	5,000
Total	22,250	36,000	48,000	55,500	70,000	100,000

Source: Piano Autarchico, cit.

The autarchic plan perceived reaching a greater production capacity progressively and its ideal was a growth similar to that of the German model, where production and consumption had growth up nine fold since 1932[93]. Included in the plan was a detailed increase of alumina plant in order to have 2 tons of alumina for each ton of aluminium. The A, B and C plant's propriety could be in the hands of Montecatini and Sava through a 'Corporazione dell'Alluminio'[94].

However, the leucite affair did not arrive to have satisfactory conclusion and the Autarkic plan for aluminium in 1937 was to concentrate only on the production and supplies of Sava and, more, of Montecatini. In this plan, also the supply for electrical

[93] Production passed from 19,000 tons in 1932 to 130,000 in 1937 and consumption from 18,500 to 132,000. See Metallgesellschaft, *Stattistiche Zusammenstellungen uber Aluminium, Blei, Kupfer, Nickel,Quecksilber, Silber, Zink und Zinn*, Frankfurt am Main, Various Annual Issues (1933 to 1938).
[94] AtdR, Corporazione della Chimica, *Piano Autarchico*, cit.

energy and the financial aspects of the arrangement was conceived by the State. The electrical investments were the most heavy to achieve by an enterprise and the Government help was one of main aspects of the affair. The Government did not discriminate the Swiss company in its policy: as result of international problems in currencies, the Government made some facilities loans to Sava when the 'piano' was started because Aiag could not import capitals in Italy[95].

The production of the four plants evolved, up until 1943, when the Armistice interrupted the evolution of investments. See at Table 3.3:

Table 3.3.Production, National Demand and foreseen production capacity of the 'Piano', 1938-1943, in metric tons

Year	Alluminio Italiano (Alcoa)	SNAL Montecatini Mori	INA Monteatini Bolzano	SAVA Bernabò Aiag	Tot. Production	National Demand	Production capacity in the 'Piano'
1938	1,576	7,385	6,443	10,363	25,767	26,000	36,000
1939	2,172	8,603	8,141	15,047	33,963	32,900	38,000
1940	2,463	8,569	11,826	15,932	38,790	42,800	40,500
1941	2,936	7,488	19,234	18,537	48,195	59,100	45,000
1942	2,423	7,143	17,751	16,224	43,541	52,600	50,000
1943	2,140	7,788	20,375	15,889	46,192	56,000	60,000

Sources: Metallgesellschaft yearbooks for Demand, R. Innocenti, cit., for each plant production and "Piano Autarchico" cit. for Ratio Capacity. In the demand, part of difference between production and consumption was supplied by secondary aluminium.

Government intervention in Aluminium production was very far from what the 'piano' of 1937 predicted if leucite production could start. However, Government policy results are not negligible. This policy changed the structure of Italian production and market and created an artificial demand for aluminium. Even if this augmentation was always presented by Montecatini as a great success for the company and for the economic policy of the country[96], there were some problems in this 'state-driven' development. The intention of the Government was to have aluminium for its needs, like war material or cable for electricity transportation. Those demands, however, were very uncertain and unstable: for producing aluminium, it was necessary to have a stable demand in order to plan the investment in hydroelectric power and a gradual amortization of these investments. In 1939 the aluminium companies started to worry about their position in the future: if on one hand they exploited the great demand for

[95] ASBI, sconti, pratiche, fasc.580 sfasc.1, Cart "Venezia, 1935-38".

[96] For example, in the annual relation of 1939 (year 1938), we can read: "Par sa production d'allumina, le Groupe Montecatini a obtenu, à l'aide exclusive de la technique italienne, un nouveau succès dans une branche dominé jusqu'à hier exclusivement par un Cartel international". Montecatini, Relation du 50eme exercise, 1938, in French, p.17.

military uses, in the other hand they thought that it would be impossible to rely them for ever[97]. This period of fast investments in fact had got worse the production price for aluminium, and also the price fixed by the government rose faster. See the Table 3.4:

Table 3.4.Price of Aluminium on Italian Market, in Lira per kg, 1936-1941.

Year	1936	1937	1938	1939	1940	1941
Price / kg	9,25	9,60	11,00	11,50	12,00	12.70

Source: Montecatini, AG, year 1939 and 1940.

This price, fixed by the Ministero delle Corporazioni, was arising and can be attributed to two main causes. First, the Ministero taxed the aluminium to finance the ‘Piano’ and further investments. Second, the ‘Piano’ had some problems with regard to electricity supply. The aluminium plant often did not have a regular procurement of energy for work and a great production of aluminium as that one envisaged by the plan required a continuous and regular energy supply. The old aluminium plants, based upon the use of surplus of energy became over-sized in relation with the possibility of energetic supplies. This aspect broke the economy of scale of aluminium and reduced the profits[98]. The structure of aluminium production became very worrying for producers who understood that, after the rise in consumption driven by military programmes, they cannot export and they cannot compete on the international market.

Conclusions.

The Italian aluminium industry was strongly connected to international cartel games and international cartel agreement until 1934. Thereafter, other factors affected the development of this industry and the Government policy became the most important factor in development. Italian production was partially controlled by international companies like Aiag and Alted, but the growth in production can be attributed to the Government, which planned and financed expansions and study alternative solutions for alumina production as Blanc one (even if it failed). The lack of control over the international cartel was not the result of a sort of ‘appeasement’ policy made by the

[97] Idem, 54esimo esercizio, 1941 (year 1940).
[98] ASBI, Direttorio Azzolini, cart.87, fasc.1, sfasc.1, “comitato interministeriale per l’autarchia, verbali della II riunione del 3 febbraio 1939”.

cartel in regard of Italy's Fascist regime but it was the consequence of the multinational strategy for Italy and the effect of the troubled relation between international companies and Montecatini, the biggest Italian chemical company. Italy changed from an importing country became an exporting one because initially the international companies competed for Italy, causing overproduction. Subsequently European Cartel also competed in Italy with Alcoa, aggravating overproduction and starting exportation. Finally, when Alliance was created, all the reasons for having a non-restricted production in Italy ended, but the contracts obliged the cartel to take charge and rectify the Italian situation. The Government with its policy for production and autarchy in 1937 was not completely effective and the production did not cover the fixed quotas and had high costs.

The effects of international control over the Italian market varied during this period. In the first phase, cartel policy influenced the lack of production and the spurt of importation. In the second phase, the cartel policy consented to Italian production to develop, to produce and to export. As noted, that was the result of some complicated relations between Americans and Europeans and between Montecatini and international investors. At the same time, the cartel obtained that the Italian production didn't arise its maximum production capacity, which rested at 12-13,000 tons per year until 1935.

After 1935, Italian production began growing, free from cartel obligations. This policy however, did not have the same result on all Italian companies. Montecatini had a great profit and became the first aluminium producer because of proximity with the political power. Aiag had also exploit the opportunity of conjuncture of the Thirties, although it was a foreign company. In this case, the capacity of making business with an Italian entrepreneur well accepted in the economic and politic *milieux* worked to the benefit of Aiag's aims. Alted, indeed, had no chances for developing its investment, but the Government did not avoid its enlargement. It appears that Alted never request it of the Government and in 1940 Borgofranco was confiscated after the declaration of war.

The impact of Government policy for aluminium was considerable. The Autarky represented a good opportunity for companies to develop and enlarge plants and to find markets for increased production. However, these markets and these developments were not well balanced and create some productive problems and an expansion too dependent on war demand.

In conclusion, this paper has stressed that for Italy it wasn't the Government that make the first step to emancipate Italian production from the international cartels, although it had a role after the rupture had already arrived. Italian Government found with its policy the demand for an overestimate production and help the producers in the international competing with custom duties. Thus, the policy of 'piano' was a further phase of the Aluminium industry where the Government developed new demands in aluminium, this time too war and military necessity oriented.

Returning to the Marlio's quotation on the head of this paper, the problem of market and consumption was for Italy and, we can guess, for all new comers without comparative advantages, the great issue for international investing actors. All policy and strategy for develop consumption (aid to exportation, compulsory substitution, development of war demand) created the situation for the selling off of overproduction and for the consolidation of the "normal" consumption. In the Italian case, the accent on strategic demand and accumulation of stockpile had the production exit from economical issues with the consolidation of war-vitiated industry.