The Aluminium Industry in Guinea

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Robin Murray

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On current estimates, Guinea has the second largest reserves of bauxite in the world. The alumina production from the single Fria works averages 480,000 tons a year, or one sixth of world alumina production. There are plans for a second alumina works in the Boké area, as well as an electrolysis factory for converting alumina into aluminium. There is already a plant manufacturing imported aluminium. Fria's output is worth £10m. a year, and represents half of Guinea's exports. Thus already bauxite and its processing occupies central place in the Guinean economy and the potential of the industry clearly extends much further.

One of the most striking features of the industry in Guinea has been the rapidity of its growth. Bauxite was not mined on a commercial scale until as late as 1952, this, in spite of the fact that the existence of the mineral was known at the beginning of the 19th century. (note 1.) The initiators were the firm, Bauxite du Midi, a subsidiary of the Canadian Aluminium Ltd. BDM had obtained the prospecting rights for the neighbourhood of Boké in 1921, and for the islands of Loss in 1934. It was on the islands of Loss that BDM set up their first mining, milling and shipping facilities after the second world war. The complex which involved investment of $12m. was aimed to produce and export a minimum of 250,000 short tons of bauxite a year. After initial production in 1952, output quickly reached the target, and in 1955 and 1956 it doubled to 500,000 short tons annually.

In 1956, indeed, Aluminium Ltd. announced that they were planning to invest $100m. over five years in developing the second stage of their Guinean development plan. Through BDM, they were aiming to establish a bauxite and alumina industry in the Boke region, with an alumina capacity of 250,000 short tons a year. On top of the construction of the alumina works and mining facilities, BDM were to construct 75 miles of railway to the Atlantic coast, new port and storage facilities at the mouth of the Rio Nunez, and a new township at Boké for the employees and staff of the works. (note 2. see FT and Times for 16.11.56. also, West Africa. November 9th, 1957).

The third major reserves of bauxite were at Fria. These had been first discovered by Pechiney, in the 1930's. Like Boké deposits, Fria remained unexploited until the mid-50's principally because of the lack of any infrastructural facilities notably power and transport. When the detailed plans for the development of Fria were put forward in 1957, the planned expenditure was $150 million. When we compare this and the $100m. plans for Boke with the $12 million invested in Loss, we can understand why Loss was the first of the deposits to be developed.

This paper will be principally concerned with the development of these three deposit regions and the complexes to which they have given rise, in the years which followed Guinean independence in 1958. Because the expansion of the aluminium industry has been essentially a post-war phenomena, the Guinean experience illustrates with great clarity the problem of a newly independent country developing its mineral resources essentially from scratch. We shall emphasise, in particular, the implications of the structure of an international industry and its technology for the development of an ex-colony; the role of aid and public finance; and the crucial importance of international monetary institutions.

From the point of view of the international firm, the central features of the experience of the aluminium firms in Guinea are: the development of consortia; the part that public capital can play; the importance of vertical integration and an understanding of the logic of political economy in newly independent countries.

The Fria consortia

The prospecting rights in the Fria region had been originally held by the French group led by Pechiney and Ugine. Yet the post-war developments of the French companies, and of this region in particular, have been marked by a constant tendency to involve rival companies in researching or exploiting consortia. The principle reason for this is financial. Unlike the longer established non-ferrous metal industries, most aluminium firms in the immediate post-war period in Africa, lacked the capital to take on the risks and the costs of developing an infrastructure as well as an industry, all by themselves. Thus if they were to secure certain sources of supply, and this seems to have been the main concern of the European aluminium firms in the 50's, they had to involve not only other private firms but certain sources of public capital at the same time. In Guinea the problem centred round the development of a power supply and to a lesser extent a transport network to connect the mining complex to the sea.

Consequently, the first formal association of the aluminium firms was to develop power supplies and not bauxite extraction directly. SAREPA (Societe Africaine de Recherches et d'Etudes pour l'Aluminium) was formed in 1952 with a capital of 200 million francs. It was composed solely of French firms, and their first achievement was to get FIDES to extend the necessary credits to the public EEG (Energie Electrique de Guinée) to pursue feasibility studies for a power scheme on the Konkouré.

Initial plans by EEG forsaw an output of 300 kW, but by 1955 the project was geared to produce 570,000 kW from a total initial investment of 40 milliard F (c. £40m.) A similar hydro-electric scheme on the Kouilou river for aluminium producers in French Congo costing 60 milliard F. was simultaneously under discussion. Accordingly the public authorities put considerable pressure on the private aluminium producers who were to profit from the electrical schemes to share some of the cost. It is this pressure which explains the widening of the French producers group to include the Italians Montecatini, the Germans VAW (Vereinigte Aluminium Werke) SSIA (Societe Suisse pour l'Industrie de l'Aluminium), as well as BDM. The private firms contributed 9% of the 1 million F. capital of the new 'société' (le Société Civile Hydroélectrique de et du Kouillou) which was set up to formalise this involvement. The central bank provided 55% of the capital. The aim was still limited to the elaboration of the already existing studies of the Konkoure and Kouilou power projects.

Almost simultaneously, the European producers founded their own organisation AFRAL (Societe Européene pour l'Etude et l'Industre de l'Aluminium en Afrique). It included Pechiney and Ugine, VAW, SSIA, and Montecatini, all of whom contributed equally to the 20m. F. capital. The aim of the society was to co-operate in the preparation of plans for the establishment of alumina and aluminium industries throughout black Africa. (note 3. cf. Louis Henin. L'Industrie de l'Aluminium en Afrique Noire. 1958. 60 pp).

It was against this background of co-operation thatthe Fria project must be seen. The scheme involved an alumina factory, a hydro-electric works at Souapiti, and an aluminium smelter. Three separate companies were formed to carry through the project. The first to be known as FRIA was to extract

bauxite and construct the alumina factory, with an initial capacity of 480,000 tons p.a. Additionally the company was to build a 140 km. railway between Fria and Conakry, pay half the cost of a 60 km road and establish a town at Fria. The total capital cost was estimated at 20 milliard F CFA or £35m. The whole of the sum was to be contributed by the partners save for a loan of 3.7 m.F. CFA from the Caisse Centrale de la France d'Outre Mer. (note 4. West Africa. 9.11.57).

The initial partners in Fria were:

Olin Mathieson	50%
Pechiney-Ugine	23%
British Aluminium	17%
A.I.A.G. (Swiss)	10%

Olin Mathieson were the newest of the large American aluminium companies and had previously imported their raw material. Like Pechiney, B. A., and AIAG, their principal concern was the securing of regular supplies, but only OM and AIAG had previously had no direct supply sources. Pechiney and Ugine had a combined share of 82% in the Edea aluminium complex in the Cameroons, ALUCAM, and their aim at Fria was to provide both bauxite and alumina to Alucam thus freeing supplies for other projects. (note 5. L'Information Paris. 3.3.59). British Aluminium similarly had rights to bauxite reserves in Ghana which provided a greater part of their needs.

The other two companies were concerned respectively with the financing of the Souapiti hydro-electric works and with the construction of the aluminium smelter at Fria, whose capacity is planned at 150,000 tons p.a. The Souapiti scheme had, as we have seen, been the subject of research and wrangling for some considerable time. It was estimated to cost some £60m. of which the French government were to contribute £6m., the private companies £6m., the French Guinea government £2m. (mostly to cover the cost of land to be provided for

the scheme) while IBRD was to advance £25m. on a 25 year loan at 5½%, and the French government, £20m. on a 50 year loan at 3%. The French government remained a minority shareholder, but with a possibility of either itself on the French Guinea government taking a majority holding at a later date.

The smelter involved the same private group companies as the Souapiti scheme, but in this company the private shareholders provided virtually all the £48m. capital. The shareholders in both the second and third companies comprised the four Fria groups, plus Aluminium Ltd., VAW, and Montecatini. (note 6 see West Africa. 9.11.57).

Of these three companies only Fria survived as a workable unit. It had been formally founded in February 1957, and financial arrangements were reached at the end of July 1958. Of the total capital cost of $135m. equity was $39m, contributed in the following way:

Olin Mathieson	53.5%
Pechiney-Ugine	26.5%
B.A.	10%
A.I.A.G.	10%

Almost all the equity represented sums already spent (a total of £12.8m or $35.8) The debt capital of $96m. was contributed as follows:

U.S. institutional investors through Lazard, Freres & Co.	40 m.
FRIA obligations sold to the French public	20 m.
A.I.A.G. loan	7 m.
British Aluminium loan	7 m.
French government long term loan	22 m.

The French Guinean government had further made a long-term agreement with FRIA on the insistence of the latter. The territorial government guaranteed that none of the import duties on equipment required by the Fria (& Boké) schemes nor export duties on bauxite, alumina and aluminium will be changed for the following 30 years. They further agreed on import duty concessions during the construction period; and although profits tax was set at 20% it was thought that the concessions contained in the agreement were such as to make it unlikely that the companies would pay much tax during the first 30 years of operation. In return FRIA agreed to contribute £3/4m to a 'Fonds d'Amenagement' intended to finance projects to balance the economy. Import duty revenue (estimated at £2 m) from construction goods imported by Fria would also enter the Fund. (note 7 West Africa ibid. for 1958 agreement see New York Times 7.8.58 and AMM (American Metal Monthly) 13.8.58).

The important points about this agreement are both the highly favourable terms that the Fria company obtained from the colonial government, and the considerable French government support through Pechiney and Ugine as well as through the long term loan. The significance was to become remarkably clear after the Guinean referendum in September 1958, and their Guineans rapid assumption of independence on October 2nd. The French withdrew their technicians and public servants; blocked Guinean balances held in French banks; severed trading links; and ceased public capital payments and the payment of pensions to war veterens living in Guinea.

Further, the French withdrew from the long-delayed Souapiti scheme. Since they held half the £12m. equity capital and had made a £20m. loan the project was deprived of nearly half its capital. That was enough, together with the uncertain political situation, for the World Bank to withdraw its £25m advances. The collapse of this scheme led, too, to the collapse of the third company's scheme, the smelting plant which was heavily dependent on cheap power from Souapiti.

There was, accordingly, considerable concern among the Fria holders that the French would withdraw their support for this scheme also. As well as the participation mentioned above the French had effectively committed £8.75m. (5 milliard F CFA) to the alumina project by financing extensions to the port of Conakry, and the French state bank Caisse Centrale de la France d'Outre Mer had made a loan of £6.5m. (3.7 milliard F CFA).

It seems that the French government from the very beginning did not intend to withdraw from Fria. It would have meant not merely damaging considerably two French concerns who had already invested over £3m. in the project, but also cutting off the chance for these two companies to expand considerably in the future. Pechiney were to manage the firm in Guinea; the Fria deposits were to form an important link in the French development of aluminium in West Africa; and the rising French demand for aluminium might otherwise have to be increasingly satisfied by imports from North American firms.

Thus it was reported that already by September 30th, a shareholder who asked about the future of the Guinean aluminium schemes at the General meeting of Ugine Co. was given the firm reply that the existence of FRIA "was not threatened" though no statement could be made about the Souapiti scheme.

This was followed by a public statement on October 15th by M. Cornut-Gentille, the French Colonial Minister, that the French Government's undertaking to help finance alumina development in Guinea was unaffected by the recent vote for independence. (note 8. Basler Nachrichten. 8.10.58. and TITTN 1758/58)

Undoubtedly, however, there was some concern among the Fria partners. In November Olin Mathieson ceded 5% of their holding to the state owned German VAW, who had been actively searching for supply sources throughout the fifties. (note 9. see E.M. Weide in Aluminium 11 902-903 October 1957) In the following February the U.S. company was reported to have bought government guarantees (made by the International Co-operation Administration which administers U.S. aid programmes) totalling $72m. against the possible expropriation of their investment in Fria by the Guinean government. (note 10. Wall Street Journal 16.2.59) Pechiney themselves held an extraordinary meeting in Lyon on February 20th where it was announced that the Fria project would go ahead as scheduled, with completion in 1960. (note 11. Metal Bulletin 3.3.59 p.28).

Production, indeed, started very close to schedule, at the beginning of April 1960. First shipments took place on May 4th. and by the end of the year 185,000 tons had been produced, and 117,000 tons shipped. The complex included a 30,000 Kw power station, the town of Sabende with 5,000 population, the 88 mile railway, 37 miles of new road, 60 miles of renovated road, 1,100 feet of new piers in Conakry harbour, as well as storage facilities in the port for 57,000 tons of fuel oil and 36,000 tons of alumina. Further, the plant alone (consisting of 300 foot long ovens, vats for the bauxite/caustic soda mixture, the crushers and grinders of the bauxite, the bulldozers,

mechanical shovels, and trucks,) required 180,000 tons of equipment which was transported inland from Conakry.

The following year, 1962, production reached 400,000 tons of alumina, and by 1963 the projected output of 480,000 tons had been effectively reached (note 12. figs. for Fria's bauxite and alumina production are given in Figure 1. source: Report on operations published by Fria. 1967.) The security of supply sources of alumina which as we saw was initially the principle aim of the participants in the Fria consortia was evidently achieved. However, in the period following the initial commitment of capital the demand situation for aluminium had become a problem for certain of the partners. If we look at Figure 2 which relates Aluminium Reduction Capacity and Output for 7 industrial countries, that while in 1957 at the time of the first Fria contract there was little surplus capacity, with the exceptions of Canada and to a lesser extent Britain, by 1959 considerable excess capacity had appeared in the U.S., & the U.K. while an actual shortage of capacity revealed itself in Norway in late 1957, and in France during 1959. A similar shortage was evident in Germany.

This change in economic conditions explains :

(a) the reduction in B.A.'s participation in Fria from 17% to 10% between February 1957 and July 1958; previously while there had been some excess capacity, output had been rising;

(b) the reduction of OM's share to 48.5% in November 1958;

(c) the increase in Pechiney-Ugine's shareholding by the time of the capital agreement in July 1958;

(d) the invitation to participation of VAW in November 1958:
VAW had held an option to join the Fria concern in 1957,
but this implied that production would be increased to 800,000 tons annually. As the largest German aluminium firm she saw herself as the

main supplier of the estimated 4-6% increase in demand for aluminium in Germany over the period 1957-67. She had procured a small share in the Delphi Bauxite mining concern in Greece; concluded contracts with Yugoslavia; and as we have seen held a share in AFRAL. In 1959 she signed a contract for supplies from Surinam.

Thus while the spreading Fria's capital risks may have been one reasons for the VAW participation (her contribution was 24-25 Mill DM.) the spreading of demand risks was also a crucial factor. Olin Mathieson had in fact been far less seriously affected by the fall in demand for aluminium in the U.S than some of her competitors. In the first 1/4 of 1959 her sales in the U.S. and Canada at $159m. showed a 25% increase on the first 1/4 in 1958, and her net profits of $6.4m. a 43% rise. The fifth and last potline of the jointly owned primary aluminium smelter of Ormet Corporation had come into operation in January, 1959, and the aluminium rolling mill came into full operation during the 2nd quarter. (note 13. AMM. 29.4.59). Nevertheless, while OM were increasing their market share in North America, the general excess capacity of the industry inevitably affected the demand estimates of OM. By 1960 it was reported , in fact, that OM were now not required to take alumina from Fria until 1965. (note 14. NYT 2.5.60).

One final note should be made on the Swiss partner, AIAG. This company had a 1/3 interest in the large Mosjoen smelter in Norway. Both the greater part of its own Fria quota and all VAW's quota (c. 25,000 metric tons a year) was shipped to this plant. AIAG agreed this arrangement with VAW in 1959, in supplying VAW's Grevebroich plant with alumina from her own Martinswerk subsidiary. (note 15. Handelsblatt. 13.7.59).

The first cargo of alumina was consigned to Doulla in the Cameroons for the Pechiney-Ugine plant at Edea. A second 6,000 tons cargo went to Mosjoen in Norway.. Indeed, even by May 1960 the projected supplies for the year had been sold out. (note 16. NYT. 2.5.60.) But by 1962-3, the demand problem had become a major one, and agreements were signed in March, 1963 with an Austrian company (Vereinigte Metallwerke Ranshoden-Berndorf A.G.) for a long term supply of alumina, and in Autumn 1963 for the sale of 2,000 tons of alumina to Poland. (note 17 Presseneldungen Uber die Metallmarkte March 63, Metall Bulletin 18.10.63. p. 26) The rapid rise in demand in the U.S. (see Figure 2) has since somewhat alleviated this problem.

FRIA and Dualism

The bauxite deposits at Fria were estimated at c. 150 million tons, sufficient for 80-100 years supply. The 1957 contract between Fria and the French Guinea government, while it promised considerable financial relief for the consortium, lasted for 25 years and after this period the Guinean government might expect considerable revenue to accrue from the operations.

As we have seen, the new Guinean government behaved with marked affability towards Fria for some $2\frac{1}{2}$ years after independence. The Olin Mathieson mission of January 1959 was received in an atmosphere of 'friendly understanding'.

On his world tour in October/November 1959 Sekou Touré had re-assuring meetings with Olin Mathieson in the U.S., and British Aluminium in the U.K. The 1957 accords were maintained. Touré reassured Fria that it had nothing to fear in respect of nationalisation. Even after Guinea decided to leave the Franc zone, and French transfers were suspended, relations between the company and the government remained co-operative.

Yet Guinea was clearly unwilling to allow the 1957 agreements to stand, for two reasons. Firstly, the receipts of foreign exchange from the Fria exports were the main source of foreign currency for the now developing country (the first plan covered the years 1960-1963.) Secondly, without taxation Guinea would have gained comparatively little from Fria's exploitation of her resources. The Fria complex formed the basis for the development of a 'dualism' familiar to poor countries dominated by extractive industries.

By dualism I mean the division of an economy into two sectors: a subsistence sector with a low technological level, a 'traditional' culture and under - or unemployment; secondly, an advanced sector centred round an extractive industry whose links in terms of exchange, investment and skilled labour flows are much stronger with an external country or countries than with the subsistence sector of the dual economy itself. The key factor for the understanding of the development of a dual economy is extractive industry. Usually composed of one or two major international firms, the industry gets the majority of its inputs - labour, capital, manufactured inputs, - from outside the country, and the majority of its revenue output in terms of wages, interest or profits either is transferred out of the country or is spent on goods which are imported. Finally the extracted resource is usually transferred abroad for processing and fabricating.

Since the extraction of bauxite was relatively recent in Guinea, the economy has not yet taken on the features of a dual economy as have countries like, say, Zambia. What is of interest about the experience of post-independence Guinea is that her government has appeared to be aware of the dangers of dualism, and has attempted to resist its development while preserving

the exploitation of the resources by foreign firms. In doing so, some of the Guinean leaders appear to have understood a central point about dualism: that it is not primarily created as the result of a conspiracy by international firms, or particular advanced countries- rather, it is the result of the technological and economic logic of the firms who are involved in the extracting process.

(i) the role of Fria in the national economy.

Fria involved an investment, finally, of some $160 million, spread over 3-4 years. We may compare this with the figures for Guinean national income which range from $175 - 240m., with the planned investment of the first 3 year plan - $140m. later raised to $155m. - and with the total resources for the 3 year plan which were to come from internal sources (excluding 'free labour' - $40m coming mainly from budget surpluses and profits of state trading firms, (note 18. Elliot Berg. Socialism in Tropical Africa. QJE. Nov. 64 p. 557. espec. note 4).

We should further compare with these figures the annual income Fria derives from sales of alumina. Alumina is sold generally at $63.5 per ton. This represents revenues of some $30m. annually, which constitute c. 1/2 of Guinean export earnings. (note 19. OECD. The Economic Situation of Guinea and the Impact of Foreign Aid, by Robert Buron. Paris. March 1965. unpublished p. 13).

(ii) labour.

Various estimates of the numbers employed during the building of Fria have been made. The most common figure is 7,000 during the peak construction period of 1958 (no te 20. New York Times 2.5.61); in 1959 out of the 4,500 people working in manufacturing industry in Guinea 2,000 were employed at FRIA (note 21. Mineral Trade Notes. June 1960); once construction had ceased, the work force dropped to just over 1,000 roughly 30% of whom were Europeans, and 70% Africans. In 1966-1967 the figure had increased for the factory at Kimbo to c. 1,400. (note 22. FRIA pamphlet. 1967 p.7).

Thus the number employed by Fria was small, tiny compared to a total population of 3 million. Further, as is to be expected, the 70% Guineans were almost entirely non-skilled. Figure III gives the relevant break-downs (OECD report p.13). Of the 42 cadres only one is Guinean; only 12% of the technicians are Guinean; and only one fifth of the salaried workers.

Again, this was to be expected. Elliot Berg suggests that at the time of independence in 1958, there were less than 50 Guineans with university training, and less than 500 Guinean high school graduates, (QJE p.556. note 23). Nevertheless there are two consequences of the labour situation at Fria. Firstly, the key role of the technicians (a stop of two hours in production as the result of a technical hitch can put the plant out of production for siz months - OECD p.13 note 24.) gives Fria considerable bargaining power, for many of the technicians could be expected to withdraw if Fria withdrew or was expropriated.

Secondly, the high wages paid to technicians in Fria often attracts away the few skilled Guineans there are. Jacques Miandre reported in Problemes Africains the words of a Guinean cadre who said: "I was offered 16,000 francs G. in the national administration. If I had accepted this post, I would have been obliged to steal to maintain my mode of life. I preferred to work at Fria where one is offered 100,000 GF a month, without counting the many advantages." (note 25. Problemes Africaines Thursday 7th May 1964. p.2. note 1). This raising of the price of administration in an underdeveloped country by the bidding away of scarce skilled manpower by foreign firms is a common feature of the type of economy we are describing.

Thirdly, a good deal of the revenue paid out in salaries goes on imported goods. The import co-efficient is high. Amin estimates on the basis of 2.3 milliard francs paid annually to 10 - 12,000 Africans and 2,000 Europeans involved by the Fria complex - paid in the ratio 1.5 milliard to Europeans and 0.8 milliard to the Guineans - that the co-efficients of consumption are as follows: 1 milliard p.a. on increases in the imports of consumer goods; an increase in the demand for agricultural products leading to the commercialisation of the rural sector - 0.3 milliard F.; 0.5 milliard F. transferred savings, a certain amount of the salaries of Fria workers is paid directly to banks of the Fria participants abroad and thus never appears in the exterior balance of Fria; finally 0.5 milliard paid in taxes. (note 26. S. Amin. Trois Experiences Africaines de Developpement p.156). Thus 65% of all salaries paid to associates or employees of Fria are either transferred out of the country or else provide effective demand solely for foreign goods.

(ii) Capital

As we have seen the capital for the Fria development was almost entirely foreign. Under a third was equity capital provided by the partners: the remainder was debt capital drawn from a variety of public and private sources. Complementary investment for port expansion was provided by French public capital. The Guinean government itself had little if any direct demands on its budget for similar complementary projects.

The return flows on the foreign capital were confined in the early years to interest paid on the debt capital. The rates varied mostly in the region 5 - 6½%. British Aluminium's loan was 6½%.

(iv) Other inputs.

That part of the capital not spent on labour goes on other inputs, machinery and building materials during the construction period, raw materials during the periods of operations. Taking the construction period first, we have seen that in F. CFA milliard, total expenditure over three-half years was 35 (the equivalent of $140 m). Amin estimates that this was broken down as follows:

imported materials	14.4
studies & other expenses abroad (including financial charges	3.6
Public Works	15.8
(of which European salaries 5.4, African 2.7)	
tax	1.2

He gives a further annual break-down in the following table:

	Beneficiaries	
	Abroad	Guinea
Imported materials	4.2	0
Expenses outside Guinea	1.1	0
Works: materials	2.3	0
European salaries	1.2	0.3
Guinean salaries	0.3	0.5
Taxes	0	0.4
Total	9.1	1.2

(Source: Amin. p. 157)

In other words, of the investment expenditure during the construction period, only 12% fed into the Guinean economy, c. 4.2 milliard F. CFA, or $17m, over 3½ years.

During the operating periods, Amin takes the 1961 output figure of 400,000 tons of alumina, yielding - 6.8m. CFA. The division of the benefits from this 6.8 milliard is as follows:

	Beneficiaries	
	Abroad	Guinea
Primary materials and services	2.3	0.3
Salaries : European	0.6	
Guinean		0.4
Taxes		1.0
Gross benefits: repayments	1.4	
amortisation	0.7	
other	0.1	
Total	5.1	1.7

(Source: Amin. 157-158.)

The Guinean benefit accordingly reaches 25% of total benefit in this first period of operations. Nevertheless an annual contribution to the economy of c $6.8m. from an enterprise so dominating in the economy as Fria, is small in comparison to the 3 year investment programme of $155m. prefigured in the First Guinean Plan.

The figures given above are subject to some comment. The Fria complex is treated as a complex, that is the inputs we are concerned with are those for the complex as a whole (bauxite mines, electricity plant as well as the alumina factory). Besides heat and ore, the other principal raw material for alumina production is caustic soda. This is imported. Other inputs for the Bayer process include soda ash, lime for causticising the soda ash, and fuel oil, gas or coal.

The salary figures do not bring out the amounts spent by Europeans at Fria on Guinean goods, nor the import co-efficients of the Guineans. Amin suggests (p.156) that the multiplier for supplementary revenues accruing to Guinean peasants is near unity, because of the rigidity of the supply of local manufactured products in spite of the strong demand. We may expect some increase in the supply of these 'primary' manufactures as Guinean industrialisation proceeds.

The gross benefits can be expected both to increase as production increases, and the 'other' item is likely to grow as the debt capital is repayed. In the second stage of the Fria development Amin estimated that they would reach 1.2 mld. and in the 3rd stage 3.3. mld.; (Amin p.157), but this was for a production of 720,000 tons of alumina in the 2nd stage, beginning in 1964 and for 150,000 tons of aluminium and 40,000 tons of electric steel in the 3rd stage. By 1966 Fria was still only producing 525,000 tons of alumina.

Exchange controls

It was this 'caesura' in the development linkages which we have discussed as characteristic of Fria, which promted a major change in Guinean government policy towards the consortium. On 27th March, 1961 the government informed the company that (a) all exports earnings would have to pass through the Guinean central bank; (b) that 60% of these earnings would be freed as foreign exchange to pay for Fria's imports and to service the debt; (c) the other 40% would be held in Guinean francs and could be used to pay taxes to the Guinean government, wages, and so forth.

This decree followed three weeks of chaos, for, from March 1st, the government had tried to operate a scheme whereby all payments abroad had to pass through the hands of Guinean officials. Applications by Fria piled up in the pending trays until the operation of the factory was threatened. The March 27th agreement was an amended version of this rigid exchange control.

Nothing illustrates the integration of Fria into the international rather than national market so well as the effects of this decree. Almost immediately the company found itself in difficulties, for their foreign exchange allowance was not enough to cover their needs. Consequently, all members of the consortium found themselves forced to send in more capital from abroad into Guinea to expand their foreign exchange allowance.

Olin Mathieson were pressed particularly hard, and a crisis developed within the consortium centred on OM's difficulties. As debt repayments have eased, so has this particular crisis. Fria also persuaded the government to raise the exchange quota to 66.2/3%; but there is the strong possibility that the figure will be lowered again once the debts have been repaid.

The exchange control policy as a method of trying to reduce dualism has had a number of interesting outcomes:

(i) transfer prices. The price of the exported alumina is mostly a transfer price for the companies concerned. Accordingly, they have kept it as low as possible not only to minimise taxes, but as a means of transferring some of the earning power of the material to the companies without it going via the Guinean banks and the exchange controls. This low price of Guinean alumina stands in contrast to the high price of Jamaican alumina, for in Jamaica the tax concessions have made it worth the companies while to be taxed on a high price in Jamaica in order to save taxation in the higher stages of production in the U.S.

(ii) the international agencies. With surplus Guinean francs, and deficits of foreign exchange, it was clearly in Fria's interests to try and assure that increasing amounts of inputs could be paid for in Guinean francs. Since the Guinean franc was non-convertible and was virtually worthless outside the country, this effectively meant buying the inputs in Guinea.

One way in which this was done was to get raw materials sent into Guinea either as aid in kind or tied aid. In 1964 Fria successfully persuaded AID to forward a loan to Guinea to buy oil which Fria would then buy in Guinean francs. The total amount of this loan was $7m., and was only made possible because a similar import of oil had been made the previous year by the Russians - and the threat of a repetition of this together with the increased dependence of Guinea on the Soviet bloc which this implied, overcame the AID's antipathy to the Guinean regime.

(iii) Fria's surplus in Guinean banks.

A considerable surplus has now built up in Fria's Guinean account. As yet this has not been used to finance new projects in Guinea, but currently plans for such projects are under discussion. The exchange control policy is thus accomplishing indirectly what many underdeveloped countries have failed to do directly, the persuasion of the international firms to plough back profits into the country. Against this has to be offset the effects of the slowing down of expansion plans by Fria. The relative gains of the policy (excluding for the moment the effects of other firms wishing to invest in Guinea) can be gauged by counting the loss to Guinea through non-expansion as against the increased funds for the development of Guinea through the exchange quota policy. It should be noted, too, that despite the squeeze caused by the quota policy, once this eased in 66-67, discussions for the expansion of the plant to 700,000 net tons a year were reported in the African press, (P.M. u.d. M.M. May 1967. note 28).

The point of central interest in the Fria/Guinean government relations is that both were acting according to a particular logic. The government was careful to do nothing to discourage Fria during the construction process. It could afford to put into effect the exchange control regulations because of the considerable stake which the partners in the consortium had already made. In the context, or given structure, it was economic for Fria to continue : it will be economic for them to expand; and thirdly, the Guinean government have changed the structure so that it may also be economic for Fria to expand

into input production. What appears as a considerable understanding of the necessary structural conditions for the working of private industry allowed the Guinean government to change the existing structure in order to increase the contribution of the Fria complex to Guinean development.

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The Inheritence of Aluminium Ltd.

Besides the Fria deposits, the other two main bauxite sources in Guinea on the Loss Islands and at Boké were, as we saw earlier, both under the control of the Canadian Company, Aluminium Ltd. Because of the ease of transport and the absense of power, the Loss Island deposits were not transformed into alumina on the spot, but shipped principally to alumina plants in Canada. Boké on the other hand had high grade deposits inland, and Aluminium Ltd announced in 1956 plans very similar to those announced by FRIA the following year.

The very similarity of these two schemes gives further point to the differing fortunes of them both. While FRIA were building their complex, Aluminium Ltd. remained inactive and cautious, with the result that the Guinean government finally expropriated them in 1961 on the charge that they had not fulfilled their agreements to build an alumina plant at Boké. The concessions were then granted in 1963 to Halco, a subsidiary of Harvey's, U.S. who were to exploit both sources at Boké and on the Loss islands in partnership with the Guinean government. The reluctance of Aluminium Ltd. to develop Boké and the policies then followed by Guinea reveal the differences which exist between the largest Aluminium firms, and their smaller competitors, as well as the policy problems for an underdeveloped country faced with this distinction.

A number of factors made Aluminium Ltd. more cautious at Boké than were Fria. To begin with the surplus aluminium capacity was more serious in Canada than it was for most other Western countries, as Figure 2 demonstrates. Further AL already had both locationally diversified bauxite reserves, and possessed an alumina production capacity far in excess of any owned by the Fria partners. 1962 annual capacity figures for alumina production illustrate the point: AL (which by this time had become ALCAN) 1,250,000; Pechiney 505,200; VAW 240,000; Martinswerke 160,000; British Aluminium 120,000; Ugine 100,000; Norsk aluminium 18,000 (note 29. OECD p. 91)

Thus AL's alumina capacity was quite sufficient to supply its smelter demand, particularly as the recession was serious enough to force a cut-back in production at its new Kitimat smelter in Canada. This cut-back also reduced the capital funds available for the financing of Boké, for the necessary investment was estimated at $100m.

The Company further claimed in its defense that there were technological reasons for its caution. They were themselves, testing the economic viability of the new 'Gross' process which enables bauxite to be transformed directly into aluminium without the intervening production of alumina.
(note 30. Metal Bulletin November 3rd. 1961. p. 25).

Nevertheless, AL had invested $23m. in Guinea (c. £8,170,000) and the period 1958-61 was marked by a number of attempts by the company to preserve its interests in the light of these cyclical and technological factors. Originally in 1956, Limited had hoped to produce 1.5m. tons of bauxite, and 250,000 tons of alumina - the first alumina coming out in 1961. By 1957 the alumina figure had been reduced to 220,000, an output which would have consumed only half the bauxite output. The long term convention signed by Limited and the

Guinean government on May 17th 1958 preserved this output figure, but included a clause that the first alumina would not be produced until 1964. Limited's Annual Report for 1958 implied a still further hold up of significant alumina production until 1965.

As the target dates lengthened, estimated costs grew. Initially they stood at $100m., but by 1960 they had risen to $150m, and by 1961 to $175m. In 1959 Limited approached leading Western firms to attract them into participation in the project, and negotiations were reported in the early part of 1960 between Limited and Alcoa, Kaiser, Reynolds Aluminium, Olin Mathieson, VAW, Pechiney and Ugine, and AIAG. (note 31. FT 2.3.60) An agreement for participation in finance was in fact signed in Autumn 1960 between Limited, Alcoa, Kaiser, Reynolds, OM and Pechiney with the authorisation of the State Department. (Note 32. Handelsblatt 11.10.60) Yet in spite of this, Limited announced on August 25th 1961 that they were suspending work in Boke (work had been going on principally on harbour and rail facilities). In a statement the Company said, "During the past year and a half the participants in the project have financed the interim development work, but to date have been unsuccessful in raising the large amount of capital required. While the project is being put on a care and maintenance basis for the present the participants will continue to exert every effort to enable the work being resumed." (note 33. FT 26.8.61).

When the 1960 Agreement was made, the companies had hoped to obtain grants from international and national institutions notably the World Bank, for the finance of the infrastructural part of the scheme, which constituted roughly 2/3 of the cost. That this was not forthcoming in spite of the State Department's authorisation of the agreement can be put down partly to the economic uncertainty of the alumina industry, but also to the hostility

to Sekou Touré's increasingly strong ties with both the Soviet bloc and China, as well as his increasingly socialist policies at home. Yet there was a considerable ambiguity in the attitude of the major governments and institutions, for, as a number of newspapers pointed out at the time, the failure of the Boké projected would open the way to the Communist countries to provide the necessary capital and technical assistence and thus withdraw from the Western world roughly half of the world's bauxite reserves (if we include those of Fria).

Indeed on October 25th the Guinea government informed Bauxite du Midi that it should cease operations by November 23rd after Limited had confirmed that they would be unable to keep to the long-term contract date of 1964. Guinea made it clear that both the Boké and Kassa projects were to be taken over without compensation, and that the Kassa deposits would be worked by a team of Soviet, Czech, Polish and Hungarian technicians under a Guinean administrative director. The decree formally terminating the concessions of Bauxite du Midi was published on February 24th 1962.

Both the leading international company and the Guinean government had found that their aims, logically pursued, conflicted. On this occasion, it was the government who asserted a power in order to try and fulfil its development aims. "We must solemnly affirm," said Sekou Touré, "for the benefits of the Governments of other African states and of the financial groups to which they are linked, that the immense wealth which our country possesses shall not be exploited otherwise than in the interests of our populations, by concerns installed in Guinea and fullyintegrated into our economy. Therefore, those who cherish the hope of equipping their countries at the expense of Guinean iron ore and bauxite, as though we ourselves did not also harbour the ultimate ambition to industrialise ourselves rapidly and totally, will have to revert to a more realistic way of thinking". (note 34. Usine Nouvelle. 19.10.61.)

Kassa, Boke and the new Consortia

In spite of the failure of Limited, it seems clear that Sekou Touré, encouraged by the Fria example, believed that the most promising way of developing his countries mineral resources was by encouraging foreign capital. The decree of February 25th at the same time as ending the BDM concession, said, "Guinea is ready to open talks with all possible partners to undertake exploitation of the Boké deposits." Guinea would be especially favourable to a formula of a 'joint company' with foreign interests for exploiting Boké. (note 35 FT. 27.2.62.)

Thus, though Guinea turned to the East for the working of the Kassa deposits, she still seemed decisively in favour of private Western interests exploiting Boke. Economically, a number of factors lay behind this. The first was technological. Guinea possessed few men with technical or managerial skills, and it seems that the Eastern European countries, while willing to provide some help in this field, were unable to provide sufficient manpower for continuing production at Kassa and developing and running Boké. The initial team for operating Kassa after the ending of the BDM concession consisted of 20 Hungarians. It was principally as a result of this reduced manpower that production at Kassa fell to 27,000 tons of bauxite in the first 6 months in 1962, as against 164,000 in the first 6 months of 1961. Annual production increased from 66,794 metric tons on 1963 to 158,292 m.t. in 1964.

Secondly, there was a question of capital. The Boké scheme had been estimated to cost between $150 - 200m. The Konkouré dam and aluminium smelter scheme was estimated at c. $200m. If Eastern Europe was not to provide both of them (and loans of $400m. would have exceeded loans granted by Eastern Europe to any other non-Communist country) then Western capital appeared more likely to be attracted to the Boké scheme than that on the Konkouré, since most of

the private companies had shown themselves unwilling to build a smelter in Guinea, and since the policies of the international and national financial agencies did not favour the finance of state-run manufacturing concerns.

Thirdly, and of most immediate importance, there was the problem of demand. Upon the departure of BDM, the Guinean government almost immediately found difficulty in selling their Kassa bauxite. Of the 50,000 tons produced in 1962, the majority went to Czechoslavakia or Hungary (note 36. Metal Bulletin 21.6.63.) The following year a shipload of 12,000 tons was reported to have sailed for Germany. (note 37. Metal Bulletin 7.6.63.) In general, however, Western companies and the Japanese, were more interested in developing their own sources of bauxite rather than entering into a long-term agreement with a country which had from a Western companies point of view, a good deal of political uncertainty attached to it. Furthermore, if difficulties were found in selling the Kassa production, those involved in selling the large supplies of Boké bauxite or alumina would be even more formidable, particularly if Alcan considered exercising her major power in the world aluminium industry to prevent the necessary long-term agreements. Indeed in early 62, the heads of Aluminium Limited were reported to be "bringing pressure to bear on President Sekou Touré to drop the idea of constructing an alumina plant near to the bauxite deposits" on the basis of the demand difficulties which Guinea was experiencing in selling the Kassa output, and would experience given excess capacity in the world's alumina plants. (note 38. Jeune Afrique. February 27th - March 5th 1962.).

It was principally for these reasons, then, that Guinea negotiated with various Western companies through 1962 and 1963 for the granting of the concessions at Boké. She is reported to have approached leading American and European companies, including Alcan, who themselves were at the same time instituting legal

proceedings over their loss of the concessions. Aproaches, too, were made to Japan with a notable lack of success. What Guinea was aiming to do was to play off the international companies against each other, at the same time as using her links with the Soviet bloc as a means of trying to encourage public Western financial support to the infrastructural part of the project.

In a great measure, Guinea succeeded. The leading concessions were granted to the growing American company 'Harvey Aluminium'. Harvey's who in 1962 stood 13th in rankings of aluminium production capacity, had previously been reliant on imported supplies from other countries. Like Olin Mathieson the company was concerned to integrate backwards, and secure supplies. It was this which explains the favourable agreement, (in comparison with the offered compromise by Alcan) which Guinea was able to make,

The provisional protocol was made in November 1962, with Harvey's forseeing production starting in 1964. Ratification of this protocol was postponed however, and it was not until October 1963 that the final agreement was signed. The project was to be run by a new company, including both the Guinean government and Harveys.

There were to be three stages. In the first stage bauxite production would reacha minimum of 1 million tons per annum, and a factory would be constructed for producing calcinated bauxite. The second and third stages would consist of building a factory for alumina, and another for aluminium smelting. The infrastructural projects would include a railway 130 km long, roads, an expansion of the port at the mouth of the Rio Nunez, and the building of a town for the employees of the complex.

The first stage was estimated to cost $50m., of which Harvey's would contribute the cost of the mining facilities and the calcinating factory, and the Guinean government would finance the infrastructural projects. Guinean mineral ships would assure the transporting of 50% of the companies production.

The Guinean government would receive 65% of the profits, as well as various taxes. She also reserved the right to grant other concessions in the Boké region if the industrialisation projects could not be met by the new company.

In spite of this agreement it remained clear that two of the factors which had made Guinea turn to Western companies to exploit Boké were still operative : the supply of capital, and the securing of markets. As regards capital, the venture was to start with $2m rising to $10 m over the three stages. Guinea was to try and raise the $50 m from the World Bank. Harvey's on the other hand decided to invite participation in the subsidiary it had formed, Halco, to operate its 51% share in CBG.

This offer of participation was aimed, too, to secure long-term demand agreements. It became clear that the Boke deposits were not only some of the biggest in the world, but with a low silica content, were of high quality. The 100m. tons were then clearly in excess of the needs of Harvey's , and of any alumina/aluminium complex that could be set up in the ensuing decade. Accordingly Harvey's involved in Halco a number of companies, including its previous competitors for the concessions .

Both Alcoa and Alcan took up a 17½% share, and agreed to each purchase 1.2 mill. tons of bauxite per annum over the first five years and 1.4 million tons over the following 15 years.

Alcoa, in their agreement with Harvey's of January 25th 1967, were also reported to have agreed to contribute to the finance of the mining installations whose minimum capital cost for a productive capacity of 5 million tons a year was $30 million minimum. (note 39. American Metal Market. Vol. 74 no. 18, January 26th 1967.) Alcoa and Alcan's shares with smaller parties in the Halco Co. are as follows:

	% age share	bauxite to be taken p.a. million of m.t.	capital
Alcoa.	17.5	1.2 (1.4)	some
Alcan.	17.5	1.2 (1.4)	some
Pechiney &		0.4	
Ugine	6	0.1	
VAW	5	0.5	
Montecatini-Edison	3	0.3 (?)	
Total	49.0	3.7 (?)	n.a.

Sources: FT. 28.1.67 PMUDMM Jan. 67. Pechiney Bulletin, April, 1967. Am. Metal Market. 26.1.67.

In the January agreements, production was envisaged to start in 1971.

By this time, too, the World Bank (IBRD) had made their first significant commitment. On 30th March 1966, they approved a loan equivalent to $1.7m. to finance the foreign exchange costs of field surveys and detailed engineering of the 85 mile railway, the town near Dougofissa for 4,000 people, and the mole, jetty, hangers, electrical centre and living quarters necessary to make the port capable of handling 2,000 tons of bauxite an hour.

There is as yet little mention of the alumina plant and the second and third stages. Two factors are responsible for this. Firstly, the bauxite reserves at Boké have proved so considerable, and the demand and capital problems even for bauxite extraction so extensive that Guinea feels she can make considerable foreign exchange earnings out of the present arrangement without prejudicing the future. Secondly, two further projected parts of Guinea's industrialisation programme were simultaneously going forward: an aluminium fabricating factory, and the Konkouré dam and smelter scheme.

The Aluminium Fabricating Factory

As part of their agreement with the Guinea government, Harvey's agreed to participate in a new company, 'The Guinea Fabricating Company' which was to manufacture aluminium utensils and corrugated sheet in a factory at Conakry. The factory was planned to open in late 1965 using imported metal, but it was clearly intended as part of a vertically integrated aluminium industry once a smelter had been built. Harvey's were also reported to have plans to erect a rolling mill to process imported aluminium slabs in Guinea. (note 40. P.M.U. die M.M. July, 1965).

The Konkouré dam & Aluminium Smelter

In the summer of 1965 Sekou Touré visited Moscow where an agreement of principle was made that the Russians would finance a resurrected scheme of a dam on the Konkouré river plus an aluminium smelter capable of producing 50,000 tons of aluminium p.a.. Indeed according to Ismael Touré there were to be two dams in the new scheme, one at Souapiti, and the second at Amaria between the confluence of Badi and the rapids of Kekemata. Each would have an installed capacity of 720,000 Kw. The cost (for a single dam), hydroelectric station with an output of 3,000 kWH p.a., and the smelter was estimated at $200m. (note 41. West Africa 18 September, 1965. F.T. 27.8.65). However,

little seems to have been agreed in detail after this declaration of principle.

Guinea and the International Aluminium Industry

The study of the exploitation of Guinea's bauxite resources by international aluminium firms reveals a number of points which are central to an understanding of the nature of economic power in the post-colonial world. We have discussed this notion of power, or dominance, in an accompanying paper. What was emphasised there was that power was not part of a bi-polar opposition, drawing its meaning by its binary relationship with 'independence' or 'equality'. Rather there was a hierarchy of power; power should be seen as the imposing of limits to the freedom of choice of an economic unit by the action of another unit. In a Weberian sense, power results from the conflict of units pursuing aims which at certain points conflict. The degree of power is measured by the degree to which one unit can resist deflection from his course of action in such a situation of conflict.

This is the reason why we have emphasised the 'logic' of the units we have been discussing in this essay, the 'logic' of the firms, the government of Guinea, or the international institutions. What has become clear is that the firms have certain factors which increase their 'power' vis à vis the Guinean government: (i) the contribution which the exploitation of the reserves makes to the economy: we noticed that this was a relatively small contribution, yet nevertheless bauxite was the principal foreign exchange earner for Guinea; (ii) the difficulties of exploiting the bauxite deposits without the participation of Western aluminium firms for three reasons: technical labour, capital and markets. The last point is particularly important for in the long term the other two factors could be supplied. Labour could be trained, and capital accumulated. The problem of adequate demand would appear insoluble, for it is by the very nature of the international structure of the industry that

the large integrated firms are the principal buyers of bauxite, alumina, and now increasingly aluminium. There is, one could say, an oligosony, and this binds the country concerned to the firms; (iii) the links which the international firms have with the international agencies also assumes importance as regards the financing of infrastructure. As we shall discuss in an accompanying paper, much of the Western aid given to Guinea has been linked with the exploitation of the Guinean deposits by Western firms.

On the other hand, the underdeveloped country has certain powers also. She has the ultimate power of expropriation which Guinea used effectively in 1961. In some countries this has carried with it not only the possibility of economic embargo by the country whose firms have been expropriated but also political risks. Secondly, she derives power from the ability to promulgate particular laws relating to finance, tax, ownership, employment, training and so on. Legislation is not an absolute power. It too operates within structures - political, economic, and conceptual. This last we can refer to as the rules of the game. Thirdly, the country can derive a certain amount of latitude by exploiting the competitive tendencies which exist both in the industry concerned, and also in the wider field. Guinea has been able to strike the most satisfactory agreements from her point of view, with those firms which are growing above the industry average, and who are often trying to break down the oligopolistic restrictions of the industry. Thus Leo Harvey, chairman of Harvey Aluminium, commented after the formation of the CBG that the agreements "will ensure availability of the essential raw material for production of aluminium to present U.S and world producers as well as for new entrants into the aluminium production field.... The availability of such supplies will ensure healthy competition in an industry to which heretofore this essential raw materials has not been readily available." (note 42. American Metal M. 2.7.64.)

The Soviet/Western rivalry which Sekou Touré has carefully tried to preserve had its results in the aluminium field as well, not merely in the Russian agreement on the Konkoure project (this contained strong elements of Soviet/Sino rivalry too) but the credits which were extended by the U.S. and German governments to Olin Mathieson, Harvey's and VAW.

A number of these power factors could be expressed in terms of elasticities, or, if the assumptions underlying elasticity analysis are unacceptable, as degrees of dependency. A firm's power is decreased if the country reduces its dependence on the product in question, if there is competition in the industry either horizontally or vertically, or if the firm becomes itself dependent on this source of supply. It is in fact common for the large firms in an oligopolistic industry to have several sources of supply, indeed a number of their concessions are for reasons of oligopolistic strategy pre-emptive in origin - that is, procurred less for their own needs but to prevent possible rivals from gaining them. There often exists therefore, considerable unused potential reserves in a large firm's portfolio of mineral holdings. Against this, we have seen the interesting development in the oil and copper industries of the host countries combining with each other to reduce this particular power of the extractive firms. OPEC, and the recent conference of the 4 leading copper producing countries in the underdeveloped world are evidence of this.

Moreover, just as we can analyse power in terms of elasticities, so we can extend the analysis in terms of surpluses, what we might call guest and host surpluses. We have witnessed in Guinea the attempt to draw off some of the guest surplus to increase that of the host, particularly in the case of the Boké deposits. As regards the Fria complex, the Guinea government have realised that there was in 1961 a zone of indetermination in the relations

of the host country and the guest firm. A bargaining structure existed. If the terms were too low, it would have paid Fria to stop working and leave, but there was a considerable increase in profit which Guinea could derive from the Fria concern which they had the power at that particular moment to realise.

It is this structure, this area of indetermination which has been one of the points we have wanted to elaborate in this study. It is a static analysis. A further dynamic extension of the approach must be emphasised however. The static structures change over time partly as a result of the decisions taken at any one period. Thus one of the features of the presence of a large international firm in an underdeveloped economy is that it often increases the dependence of the country on the presence of the firm. It reduces the countries bargaining power. This may be because of its role in the balance of payments or in the internal economy. It may be because it attracts capital and labour away from other parts of the economy - whether it be capital from small projects, or labour from administration. This is not to argue that there are not considerable 'effects' which we could analyse by the comparative static multiplier analysis: they are smaller than is often thought but nevertheless they are in absolute terms usually very considerable. What we are discussing, however, is the effect on the comparative powers of the firm and the governments of underdeveloped countries of the continuing presence of an international extractive firm.

If there are beneficial effects, 'overspills' from the firm into the economy, why should we not encourage international firms in underdeveloped countries? All can after all be considered positive. It is here that we return to the concept of power. For the ends of the firm and the country do on occasions conflict. We saw an excellent example of this in the reluctance for technological reasons of Aluminium Ltd. to develop an alumina plant at Boké.

In the terms of the company this was probably a justified decision, certainly it would appear to be if we take into account the surplus alumina capacity possessed by the company at that moment in time. Yet Sekou Toure clearly wanted to develop a vertical industry within his country as a backbone for its industrialisation. This aim was a possible one (the analysis of power I have put forward does hinge on the problem of value - who is to say that an aim is justified or 'reasonable?). If Limited had been more fully established, in other words had been more powerful, it could have imposed its logic on Guinea in this case (This is exactly what did happen in Jamaica in this very period). It was of economic importance for Limited to be in Guinea both from a pre-emptive, diversifying, and purely economic point of view. These factors, however did not outweigh the cost of building up its surplus alumina capacity.