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## **ACCOUNTING FOR LES FORGES DE SAINT-MAURICE 1730-1736\***

*Abstract:* From a capital budget, an operating budget and a partnership agreement prepared almost 250 years ago in New France, a cash Budget and balance sheets are prepared to help in an analysis of the viability of the company. This investigation into the feasibility of the project discloses a quite sophisticated use of managerial accounting. The original partnership failed, but eventually the company became a successful venture.

Accounting played a prominent role in the establishment of Les Forges de Saint-Maurice between 1730 and 1736. This is illustrated by a capital budget and an operating budget, prepared to support a request for a much-needed loan. In this paper, after an opening balance sheet is drawn up from various bits of data, the two budgets are examined and recast into more traditional forms. They are then analysed to ascertain whether decisions might have been different if present day techniques had been used. To aid in the conclusions drawn, recourse is made to an agreement between the partners. Other parts of this agreement are also examined for their accounting content. Using all the information, a new balance sheet is then prepared. It is possible to conclude that mistakes were made that may have been avoided if all the proper questions had been asked, but there is no doubt that the original concept was very sound.

### *Background*

European explorers were first lured to North America by hopes of gold and other exotic riches, but it wasn't until 200 years after Jacques Cartier sailed up the St. Lawrence River that a more prosaic, but more useful, metal was mined and worked in New France.<sup>1</sup> This venture, Les Forges (ironworks) de Saint-Maurice,

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\*A great deal of original research on Les Forges de Saint-Maurice has been done by Cameron Nish, Professor of History at Concordia University, Montreal, Canada, and a leading authority on the ironworks. Although liberal use has been made of his work, it must be emphasized that the author is responsible for errors of translation and any interpretations of the data.

was started in 1730 a few miles from Three Rivers, a town half-way between Montreal and Quebec City. Although this was the first major manufacturing enterprise in New France, it was, by no means, the first in North America. This distinction is borne by a smaller venture established about 90 years earlier at Saugus, near Boston, Massachusetts,<sup>2</sup> approximately 400 miles southeast of Three Rivers. Several reasons can be given to explain why Saugue was started only 20 years after the first settlers arrived, while it took almost 10 times as long for a similar attempt in New France. Differences in population growth,<sup>3</sup> reasons behind the emigration from the old countries, the "Puritan Ethic" versus exploitation,<sup>4</sup> harsher weather conditions, longer trade routes, and the needs and attitudes of the mother countries<sup>5</sup>, were all contributory factors. More important for the purpose of this paper, however, was that the American undertaking was "private enterprise", while the French enterprise required government approval at every step. This bureaucracy may have hampered industrial growth but does offer some compensations for accounting historians, since a great deal of the early information on Les Forges is available from letters of government officials and state documents that have survived in archives on both sides of the Atlantic.<sup>6</sup> The Saugus story, on the other hand, had to be gleaned from court records, which, actually, only tell the seamier side of the operation.

### *The Beginnings*

The first faltering steps towards the eventual establishment of Les Forges de Saint-Maurice were taken in 1730 by a Montreal merchant, François Poulin de Francheville. He requested a 20-year monopoly from the State for the purpose of setting up an ironworks. This request was quickly granted by Gilles Hocquart, the Intendant (director), who was anxious to develop the colony and needed iron for a shipbuilding project near Quebec City. More important, de Francheville, as a true entrepreneur, did not initially ask for a subsidy or any government grant, very unusual at that time. He did, however, ask for help in recruiting experienced forgemen. This request was readily granted by the Crown, which sent two artisans from France at its own expense. By 1732, ore samples had been tested from the proposed site of the ironworks at the seignory (estate) of Saint-Maurice, with excellent results. By the end of that year, however, de Franceville realized that he had underestimated the magnitude of the project. He had spent £9,244.9s.5d<sup>7</sup> about one-third of his capital, and the forge was nowhere near ready for

operation. To spread the risk and obtain additional capital, de Francheville decided to form a company and to involve others in the project. At the same time, he asked the French government for a loan of £10,000. The new company was set up with 20 shares, worth 1s each, de Franceville keeping 10 shares for himself. The other partners being:

Pierre Poulin — De Francheville's brother and a Quebec City merchant François-Etienne Cugnet — a director of Domain d'Occident (western land), a member of the Superior Council of the colony, and shortly thereafter, first counsellor Bricault de Valmur — Hocquart's secretary, and Ignace Gamelin — the son of a Montreal fur trader.

The price of the seignory to the company was fixed at £6,000, but this amount did not have to be paid as long as payment of £300 per annum was made. (This is being interpreted as an open-end mortgage at 5%.) In April, 1733 the loan of £10,000 was granted by the government. From the data given in the previous paragraph it is possible to prepare the following opening balance sheet of the company.

Les Forges de Saint-Maurice  
Opening Balance Sheet  
April 1733

Assets		Liabilities and Capital	
Cash	£10,001	Loan payable — State	£10,000
Land	6,000	Loan — de Francheville	9,244.9s.5d.
Construction in progress	9,244.9s.5d.	Mortgage @ 5%	6,000
		Capital — partners	20s
	<u>£25,245.9s.5d.</u>		<u>£25,245.9s.5d.</u>

With the new infusion of capital, the construction of the forge progressed favourably, but unfortunately de Francheville fell sick and died in November, 1733. As can be expected, this complicated matters considerably, particularly since the government loan had been granted to de-Francheville personally. Hocquart asked Cugnet to take over the operation and early in 1734 there was finally some production. The iron, however, turned out to be of poor quality and the forgemaster, who had been brought over from France as an expert, confessed that he didn't have the required skills to run the ironworks.

By this time, £21,483 had been spent on the undertaking and there was uncertainty about the source of further funds. Although details

are not available, it must be assumed that this £21,483 consisted of the £10,000 from the government, £9,244 as originally spent by de Francheville, with the balance of £2,239 coming from the five partners. In spite of this setback, Hocquart was convinced of the feasibility and desirability of the project. He asked the French government to find two new master forgers. One, François-Pierre Oliver de Vézain was persuaded to come to the colony by a bonus of £1,200 plus an annual salary of £2,400, exorbitant payments for that time. Another master ironworker, Jacques Simonnet, was also influenced to join the operation by the promise of an equal share in the venture. Although Hocquart was prepared to abandon the Saint-Maurice site and lose the total investment, de Vézain felt, after a detailed survey, that the best available location had been chosen, even though it would be necessary to scrap most of the existing facility. By late 1735, de Vézain had prepared a detailed estimate of the capital costs necessary to set up a proper ironworks, as well as an operating budget.

#### *The Capital Budget*

The capital budget, shown in translation as Appendix A, is quite sophisticated, although in some places, the format makes it a little difficult to follow. To alleviate this difficulty, the following condensation has been prepared.

#### Les Forges de Saint-Maurice Capital Budget To prepare project for operations

Furnace		
Stonework	£6,253.6s.8d.	
Housing and sheds	1,200	
Bellows, equipment & tools	2,100	
Canal, drains, etc.	1,500	
Coke shed	1,200	
Total cost for furnace		£12,253.6s.8d.
Stone crusher and washhouse		600.0 .0
Forge (Refineries, boilerhouse & workshop)		
Stonework	£1,300.0. 0.	
Frame & covering	2,000	
Outhouses	600	
4 ovens	820	
Equipment & tools	5,830	

Canal, drains, etc.	2,000	
Coke bunker	1,200	
Blacksmith shop	1,100	
Total cost for forge		14,850.0. 0.
Moulds, cauldrons and other cast iron		1,000.0.0.
Packhorses (16)		2,400.0.0.
Forgemaster's house		4,000.0.0.
Storehouse, stable & oven		900.0.0.
Total estimated cost of project		<u>£36.003.6s.8d</u>

The capital budget seems to have enough detail and preciseness to permit a reconstruction of the furnace and all the other trappings even today. A few of the amounts are calculated to the dinari but generally they appear in round figures. Later overruns proved many of the items to have been underestimated. It is obvious, from the budget, that the ironworks would be part of a "company" town. Included in the estimate was a home for the forgemaster listed at £4,000, over 10% of the whole construction cost, while facilities for the workers were already on site from the earlier construction. A later account, by a visitor to the ironworks, painted a glowing picture of the master's house, calling it the "grande maison des forges".<sup>8</sup> A foundry was also provided for, but the amount of £7,976.13s.4d. was not included in the budget, since it was not to be built until a definite market existed for its products. A hint of possible future problems is discernible at the end of the report where mention was made of some extraordinary work that would be required, but without any dollar amount being given. The total estimated cost for the ironworks including the forgemaster's house, but omitting the foundry and the extraordinary work was £36,003.6s.8d.

### *The Operating Budget*

As previously indicated, an operating budget was also prepared, see Appendix B. This was not in traditional form and profit was not computed although revenues were estimated. The expenses were grouped by work centers, under cast iron production, refineries and boilerhouses and foundry, but foundry expenses were not included in the total. The plan was to work the mill for only eight months in the year initially, since the refineries as projected could not accommodate a full year's production of cast iron from the furnace. By the same token, the market for cast iron was unknown,

and the limited operation would prevent a large surplus of this material. It would seem that an eight month operating period was a prudent decision because the severe winter conditions in the area would tend to impede operations and increase costs.

The operating budget is recast below, following an income statement format:

**Les Forges de Saint-Maurice**  
Estimated Income Statement for One Year  
Based on eight months production

Sales:			
200,000 lbs. @ £200/1000 (local)		£40,000	
400,000 lbs. @ £140/1000 (France)		56,000	
100,000 lbs. iron objects @ £200/1000 (local)		<u>20,000</u>	£116,000
Cost of Sales:			
Raw material			
Iron ore	£ 6,000		
Coke	34,400		
Limestone	1,000		
Soil & grease	650	<u>42,050</u>	
Direct labor			
Furnace wages	6,800		
Refining wages	9,700		
Smelting wages	<u>2,700</u>	<u>19,200</u>	61,250
Gross profit			<u>£ 54,750</u>

Several shortcomings are obvious in this budget. As the budget indicated, factory expenses such as depreciation and maintenance were not covered, nor does there seem to be any provision for selling and administrative expenses. The partnership agreement does, however, shed some light. The two "working" partners, Olivier and Simonnet, were to get salaries of £3,000 and £1,500 per annum, and these amounts were included in Direct Labor in the budget. Cugnet and Gamelin were expected to manage the affairs of the company in Quebec City and Montreal, respectively, without remuneration until the business became sufficiently extensive. It is further stipulated that all other operating expenses such as administrative, selling, transport, clerical and general costs were to be met by the company and deducted before any profit sharing. No estimates were provided, however, and it is impossible to arrive at a reasonable profit estimate.

Also worthy of note was the differential pricing being recommended. This type of pricing can be justified in the circumstances. The iron shipped to France would have to compete with that produced by the local French works and with imports from Spain and Sweden. Conversely, transport costs from Europe to New France would tend to bring the actual selling price in the colony up much higher, no doubt close to the price quoted.

### *Cash Budget*

From the information presented in the two estimates, it is possible to prepare a cash budget. There is no record of this having been done, but it is deemed important since the de Francheville's death, the financing would have to be undertaken by Cugnet and the others.

Les Forges de Saint-Maurice  
Cash Requirements  
To construct ironworks and for first year of operations  
(Based on estimates of 1735-36)

Cash required for building of ironworks		£ 36,003
Cash required for eight months' production		61,250
Payment due to Mrs. de Francheville, etc.		9,244
		£106,497
Current requirements		
Payment due for seignory	£ 6,000	
Loan payable to State	10,000	16,000
		£122,497
Total cash requirements		

Even though this cash budget was prepared from the known information, certain assumptions had to be made. There was no indication of when the payment to Mrs. de Francheville and the former partners had to be made. The position taken was that this was a current liability, due immediately. The payment due for the seignory was definitely postponable, subject to a rental charge of £300 per annum. This payment can, therefore, be omitted from the budget, but is included for the sake of completeness. The situation is similar for the £10,000 loan from the State. As indicated in the partnership agreement, the partners had underwritten this loan. They subsequently asked the government for a deferment, which was granted. Although it is tempting to use hindsight with the amount for the construction of the ironworks, the estimate is accepted as given. This figure has to be considered as the best avail-



able information at the time. A more debatable amount is the cash requirement for the initial production. This has been shown as £61,250, the amount of the estimate for 8 months operation, with no provision for cash inflow from income. The line of reasoning taken here was that since the ironworks had not as yet gone into production:—

1. Time was required to complete the facilities.
2. There was bound to be some undetermined start-up cost.
3. Initial production would tend to be slow as the labor force became familiar with work rules.
4. Production would also tend to be slowed by the debugging and malfunction of the new, unfamiliar equipment.
5. No provision was made for working capital. There would, of necessity, a time lag between:-
  - i Production
  - ii Building up of inventory
  - iii Sales
  - iv Transport of merchandise to customers
  - v Collection of receivables

For all these reasons, it has been decided to show the first year operating cost as a cash requirement without any offsetting sales revenue.

It is obvious that the principals had made a similar, but possibly more optimistic projection, because they asked the State for an additional loan of £100,000. If one considers all the factors at the time of the request, this amount sounds reasonable and more than adequate to complete the ironworks and start the operations. It can also be assumed that some of the partners, particularly Cugnet and Gamelin did have other resources. And once over the hurdle of the capital outlay and the start-up of production, on the basis of the projections, the cash flow would have been very good indeed.

The government seemed to have agreed with the plans by granting the loan in the form of a drawing account against the Treasury of the Navy. Aside from any other considerations, the time-frame for repayment of the loan was relatively short. With the original loan of £10,000 plus the new one of £100,000, and anticipated profit of £54,750, a payback period of a little over two years was possi-

ble under ideal conditions, once the mill was in operation. An added incentive to a quick repayment of the loan was the clause in the partnership contract that required reimbursement to the Crown before any distribution of profits.

### *The Contract*<sup>9</sup>

The new partnership agreement was signed on October 16, 1736 by Cugnet, Gamelin, Olivier, Simonnet and Thomas Jacques Taschereau, Councillor of the Supreme Council of Quebec and Treasurer of the Navy. At contract date, drawings against the loan had already mounted to £42,970, and a note was signed by the partners in favor of the Crown for £52,970, which included the original £10,000.<sup>10</sup> From the contract, there is no doubt that a partnership was being formed, with unlimited liability and personal involvement, but with provisions for partners to disperse of their shares. It would seem that even though the corporate form of enterprise was well-known at this time,<sup>11</sup> no attempt was made to acquire this privilege.

The contract raises another matter of interest to accountants. When discussing possible separation of a partner from the business, reimbursement was to be by way of taking an inventory. No further information was given specifying how this is to be done, but this method was in keeping with the accepted accounting practice of that time.<sup>12</sup> Balance sheets were not drawn up on a regular basis, but when required, an inventory of all assets was taken and the net worth of the business was this total less the liabilities. Davis, discussing this method in 1888, accepts cost price, replacement cost at time of inventory and estimated value for damaged goods as permissible valuation Bases<sup>13</sup> — shades of current value accounting! Nevertheless, it would have seemed wise for the contract to specify the method to be used to avoid future disagreements.

Also of interest to accountants is the prescribed formula for dividing profits and losses. The following information is pertinent:

1. Profits and losses to be divided in proportion of original investments, i.e. Taschereau — 10%; others — 22½% each.
2. Olivier to receive £3,000 and Simonnet £1,500 per annum after all other expenses have been deducted, but these salaries are not to be considered administrative expenses. Each is responsible for his portion of the other's salary.

3. Other, non-listed, administrative expenses to be met by company and to be deducted before division of profit.
4. Reimbursement of loans from Crown before any profit shared.

As long as the net profit exceeded the salaries to Olivier and Simonnet and the administrative expenses, the division of profit would present no difficulty.

This is shown below, based on the estimated income statement.

Gross Profit (after salaries to Olivier and Simonnet)	£ 54,750
Less: Administrative expenses (estimate)	<u>24,750</u>
	30,000
Add: Salaries to Olivier and Simonnet	4,500
Profit to be divided	<u>£ 34,500</u>
Divided as follows:	
Olivier (£3,000 plus 22½% of £30,000)	£9,750
Simonnet (£1,500 plus 22½% of £30,000)	8,250
Taschereau (10% of £30,000)	3,000
Cugnet (22½% of £30,000)	6,750
Gamelin (22½% of £30,000)	6,750
	<u>£ 34,500</u>

Note: None of these profits, beyond the £4,500 in salaries, could be withdrawn until the loan from the government had been repaid.

### *A Balance Sheet*

From the various bits of information in the contract and other data accumulated, it is possible to prepare the following opening balance sheet as at the date of the new partnership.

This balance sheet reveals that the partnership was starting out in a negative position, because of the commitments undertaken from the previous business. The partners' expectations, though, must have been very high, because they knew when they signed the contract that a good part of the original construction was useless. It can be argued that the partners' risk was minimal with the government putting up the £100,000, but there was unlimited personal liability and all the loans had to be repaid before any drawings could be made. It will be seen in the following brief summary of the subsequent history of Les Forgas that one partner, at least, had anticipated too much.

**Les Forges de Saint-Maurice**  
**Opening Balance Sheet**  
**October 16, 1736**

Assets			Liabilities
Cash on hand	£	1	Loans payable — previous partners
Land		6,000	£ 9,244
Construction in progress (note 1)		42,970	Note payable — State (note 2)
			52,970
			Due re seignory (note 3)
			<u>6,000</u>
			£ 68,124
			Partners' equity
			Opening capital
			£ 1
			Accumulated deficit
			<u>(19,244)</u>
		<u>£48,971</u>	<u>(19,243)</u>
			£ 48,971

- Note 1** There may have been value attributable to part of the construction completed by the previous partnership. Any amount so determined would increase the "construction in progress" and decrease the "accumulated deficit".
- Note 2** The company was authorized to draw an additional £57,030 from the Treasury of the Navy against construction costs and operating expenses. This loan was repayable before any drawings by partners, other than salaries to Olivier and Simonnet.
- Note 3** A rental of £300 per annum was payable until this liability had been paid.

*Aftermath*

Les Forges de Saint-Maurice did finally start producing in 1738, but costs escalated and sales did not meet projections. This resulted in a takeover of the ironworks by the government in 1741 and the personal bankruptcy of Cugnet in the following year. The other partners, however, were able to dispose of their personal property and seem to have gotten off scot-free. Eventually, however, Gamelin and Olivier settled with Cugnet's estate. The government operated Les Forges until 1759, at which time it fell under British military control for several years. The property was then leased to various tenants who met with varying degrees of success. During the years 1793-1846 the lease was held by Mathew Bell, who it seems worked the mill very profitably.<sup>14</sup> Les Forges was then sold

to other private interests who continued to operate until 1883. During the almost 150 years that the ironworks were in existence, they experienced good times and bad, but they did supply the iron products needed in Canada. It has also been shown in a recent scientific study of some iron castings from the mill that the level of its production was of the highest quality.<sup>15</sup>

There may be areas for further research in the records of Les Forges de Saint-Maurice, particularly for the period under French control. It may even be possible to do some analysis on actual costs and production as compared to the estimates given herein, but this will have to await further translation and study. Unfortunately, records after the French era are very sketchy and may have been lost forever.

### *Concluding Remarks*

This paper has illustrated a capital budget and an operating budget prepared almost 250 years ago, using methods which compare very favorably with those used today. The available documentation does not carry the analyses to the same depth as it would at the present time, but the estimates seem to have been adequate for the purpose. Using the figures available, a cash budget and a balance sheet were prepared that might have aided the partners in their decision-making, if they had been prepared originally. But it must be realized that this was a capital-intensive enterprise being built for the first time in a young colony with inexperienced management and labour. Even today cost overruns and financial failures are not unknown in spite of the sophisticated techniques and costly analyses performed, so it is difficult to be too critical. Also bear in mind that in spite of government support, according to the partnership agreement, all the partners staked their all in this venture, not being able to hide behind the corporate veil.

It is worthy of note that the concept of the ironworks was sound. Once into production, the mill was successful with profits being very high in some years. And most important, for almost 150 years, Canadian needs for high quality iron products were supplied by Les Forges de Saint-Maurice.

Translation<sup>16</sup>

*Appendix A*

“Projected expenses to be incurred in setting up and operating the ironworks in Canada”, A.P.C., Series C11A, Canada, the St. Maurice Forges, vol. 110, tome 1, pp. 323-334.

## Firstly

## Set up costs.

## Construction of the furnace.

For the furnace structure, 26 feet square by 28 feet high including the foundations, with a capacity of 87½ cubic fathoms(1), at £50 per cubic fathom, the sum of 4366.13.4

For the large hanging each 20 ft in breadth by 2 ft. thick and 11 ft. high, on four walls, making 24% square fathoms at £16 per square fathom 391. 2.3

For the small hangings each 10 ft. in breadth by 1½ ft. thick and 11 ft. high on four walls, making 12% square fathoms at £16 per square fathom 195.11.1

10,000 bricks for the walls at £40 per thousand 400

For the fire bricks for the inside walls of the furnace 600

The pipes to keep the wall of the furnace dry 300

Total for the stonework 6253. 6.8

The housing for the furnace over the crucible opening, to shelter the bellows and hoists; this being 35 ft. long and 20 ft. high, covered and roofed with layers of planks and wooden tiles, this 600

The furnace shed, covering the moulds 30 ft. wide, 30 ft. long and 20 ft. high, with walls and roof of layer upon layer of planks and wooden tiles, this 600

The furnace bellows 800

The blast-pipe, grease and flues 300

The furnace equipment comprising wheels, pulleys and lanterns 600

For the pokers and other tools 400

For the canal, drains, flagstones and waterways 1500

Shelter for the coke used in the furnace, 60 ft. long, 40 ft. wide, with a frame 10 ft. high supported by stakes and covered over with planks and wooden tiles 1200

12253. 6.8. 12253. 6.8.

For a stone crusher and washhouse for the iron ore, with wheel and machinery		600
Forge comprising two refineries, a boilerhouse, a metal workshop with all its tools, as well as weights for the hammers and mechanical presses.		
The shelter for the forge, 90 ft. long by 40 ft. wide and 15 ft. high, whose frame is covered with layer upon layer of planks and wooden tiles.		
For the stonework, 10 ft. high including the foundations, and 3 ft. thick making 108½ sq. fathoms at £12 per fathom	1300	
For the frame and covering	2000	
For the outhouses on either side of the shelter, where the mill wheels are kept, 90 ft. long by 10 ft. wide and 10 ft. high, supported by stakes covered over with planks and wooden tiles		600
Four ovens: two for the refinery, one for the boilerhouse and one for the metal workshop, each with stonework at the base 8 ft. square and 1½ ft. thick, including the foot thick foundations, with their chimneys 30 ft. tall and 1 ft. thick at the base, becoming narrower from the base to the opening at the top, only 1½ ft. square.		
For the stonework of each oven, each 10½ fathoms, making in all 42½ square fathoms at £12 per fathom	512	
For the chimneys, each 6½ square fathoms making in all 25½ square fathoms at £12 per fathom	308	<u>820</u>
For the four pairs of bellows and trimmings		1000
For the tuyeres, grease and flues		400
For the cast iron wedges used in operations		100
For the pokers, tongs and other tools		600
For equipment for the four ovens, consisting of axles and wheels		1200
For the hammer weights		1000
For the cast iron hammer		500
For the cast iron anvil		100
For the cords and pivots of the axle of the mechanical hammer		200
For the weights of the mechanical press		500
For the wrought iron hammer		200
For the cast iron anvil		30

For the canal, with its drains, flagstones and waterways	2000	
The coke bunker 60 ft. long by 40 ft. wide beneath the frame supported by pickets and covered over with planks and wooden tiles	1200	
A blacksmith's shop, 15 ft. square by 8 ft. high, covered with layer upon layer of planks and wooden tiles	300	
For the bellows	200	
For the anvil	400	<u>1100</u>
For the forge and chimney	100	14850
For the tools	100	
	<u>14850</u>	
For the molds, cauldrons and other cast iron objects		1000
Foundry for fashioning all kinds of iron objects (2)		
The shelter, 36 ft. wide and 15 ft. tall, covered over with layer upon layer of planks and wooden tiles	2400	
Two outhouses to shelter the wheels, 20 ft. long by 10 ft. wide and 15 ft. high supported by pickets covered over with planks and wooden tiles	150	
For the 32% square fathoms of stonework under the wheels at £12 per fathom	386.13.4	
For the wheels, pulleys and lanterns, wheel axles, chains and pivots	900	
For the pulley components and the outhouses with all the necessary tools and iron ware	500	
For the canal, drains, flagstones and waterway	1000	
An oven designed to heat the iron to be molten with reflected heat: 15 ft. long, 12 ft. wide, 12 ft. tall including the foundations and 1¼ ft. thick, with its roof of 20 square fathoms at £12 per fathom	240	
For the wire netting and cast iron covers	100	340
A blacksmith's shop similar to the one at the forge, this	1100	
For a beam	100	<u>1300</u>
For files and other tools	100	



For the house for the founder and his four workers	1000
	<u>7976.13.4</u>
Sixteen packhorses for construction work and carts, at £150 each	2400
A house for the forgemaster, 40 ft. square by 20 ft. high, with two storeys, lattices, plastered inside and outside and walled with planks and wooden tiles	4000
A storehouse to keep the irons, 30 ft. square by 8 ft. high, walled with layers of planks and wooden tiles	550
A stable	250
An oven	100
	<u>36003. 6.8.</u>

This preliminary outline does not include the house where the smiths and workers will be lodged, because the house already standing at St. Maurice will be used. The other buildings cannot remain in place, as they are standing on the ground needed for the buildings which are part of this project. The materials may be used. Its value is not entered in the present statement, as this will come under extraordinary expenses which were not foreseen when composing this preliminary outline, such as excavation of roads and other work.

Unsigned  
(Olivier de Vézain?)

- (1) The word translated here is Toise — fathom, which is 6 feet.
- (2) The item included here is not entered, as the foundry will be set up only when there is a guaranteed market for the iron in the form of iron thongs and other various kinds of foundry products. (This note appears in the left margin of the manuscript.)

Translation

*Appendix B*

"Annual operating expenses", A.P.C., Series C11A, Canada, the Saint Maurice Forges, vol. 110, tome 1, pp. 335-339.

The furnace could be worked all year round, producing 1600 thousandweights of cast iron, of which only 900,000 lbs. could be used in the two refineries, to produce 600,000 lbs. of pig iron. Thus, 700,000 lbs. of cast iron would remain. As the extent of the market is not yet known, the project should be reduced to eight months of

work, producing 1,000,000 lbs. of cast iron, 900,000 lbs. of which would be used in the refineries, leaving 100,000 lbs. over to be used in making cast iron objects for use here in the Colony.

For 1,000,000 lbs. of cast iron, the requirements are:

2000 barrels(1) of iron ore at £3 per barrel brought to the furnace, this	6000	
20,000 barrels of coke to be brought to the furnace at 20s the barrel	20000	
1000 barrels of limestone at 20s per barrel	1000	
600 barrels of sandy soil at 20s	600	
100 of candle grease at 10s	50	
		<u>£27650</u>

#### Wages

A forge master	3000	
A clerk	700	
A founder	1500	
A junior founder	400	
Four labourers at £300 each	1200	£ 6800
		<u>£34450</u>

The 1,000,000 lbs of cast iron will come to the same amount at a rate of £34.9s per thousand. This expense is not entered here because it will be carried below as an expense of the refineries and the smelting operation.

Expenses of the refineries and boilerhouses		
900,000 lbs. of cast iron at 34.9s per thousand		31005
14400 barrels of coke at 20s per barrel		<u>14400</u>
		£45405

#### Wages

A hammersmith (2)	1200		
Three boilermen at £600 each	1800		
A boilerhouse helper	300		
A refiner	1200		55105
Seven refinery employees at £600 each	4200	9700	
A carpenter	500		
A blacksmith	500		
			<u>£55105</u>

The pig iron will come to £91.16s10d per thousand.

Smelting expenses.

1000 thousandweights of cast iron at £34.9s per thousand			3445	
	Wages			
A moulder		1500	2700	6145
Two labourers at £600 each		1200		
			<u>£6145</u>	
				<u>£61250</u>

Foundry expenses (3)

	Wages			
A founder			1500	
Four workmen at £300 each			1200	
			<u>2700</u>	

Output of the above forges.

Output of the refineries and boilerhouses.

600,000 lbs. of pig iron of which the following to be consumed by the colony:

200,000 lbs at £200 per thousand	40000	
400,000 lbs. will be sent to France at		96000
600,000 lbs. £140 per thousand	56000	

Output from smelting.

100,000 lbs. in the form of pans, slabs, cauldrons and

other cast iron objects which will be used in the

Colony at £200 per thousand		20000
		<u>£116000</u>

Unsigned  
(Olivier de Vézain?)

- (1) The word translated here is Pipe — a variable measure of capacity, used especially in measuring liquids. Here: barrel
- (2) These workmen will work in the metal workshop when necessary. (This passage appears in the left hand margin of the manuscript).
- (3) This expense is not entered, as the foundry will be set up only when there is a certain market for foundry irons of various kinds. (Note appears in the left margin of the manuscript).

#### FOOTNOTES

<sup>1</sup>New France, during the early 18th century, covered a vast territory extending to the Gulf of Mexico. Most of this area, however, was very sparsely populated

so that New France, as used in this paper, is only that narrow band of land along the St. Lawrence River, now part of the Province of Québec.

<sup>2</sup>For the story of this operation, see Hartley, *passim*.

<sup>3</sup>See Historical Statistics, series Z1 — 19, and Seventh Census, pp. 134-8.

<sup>4</sup>See Hartley, chap. 4, and Eccles, chap. 5.

<sup>5</sup>Hartley, p. 22.

<sup>6</sup>This material has been collected and published by Nash, primarily in French. Although considerable reference has been made to his research, the interpretations and analysis of the material, in this paper, are of a different nature and are examined from the perspective of an accountant rather than an historian.

<sup>7</sup>The monetary units used are libri (£), solidi (s) and dinari (d). 12=1s, 20=1£ (Note the British usage of £.s.d. for pounds, shillings and pence.) It is difficult to convert this amount into current dollars; some indication of its value can be perceived from the wages shown in the operating budget, which range from £300—600 per annum.

<sup>8</sup>Wurtele, p. 81. The literal translation of this phrase is "big house of the ironworks" but the connotation is that of "mansion".

<sup>9</sup>To conserve space, the translation of this document is not included in this paper. It is available to anyone interested in the details.

<sup>10</sup>Nish, *Cugnet*, p. 62.

<sup>11</sup>See the classic work by Davis, *Corporations*.

<sup>12</sup>Gordon, p. 59.

<sup>13</sup>Davis, J. D., p. 5.

<sup>14</sup>Wurtele, p. 87.

<sup>15</sup>Miller, pp. 48-9.

<sup>16</sup>The two translations, from the Old French, were made by Ms. Sheila A. Cushing, following Nish in *L'Actualité Economique*.

#### BIBLIOGRAPHY

- Davis, J. D. *Manual of Standard Bookkeeping*, Montreal: John Lovell and Son, 1888.
- Davis, John P. *Corporations*, New York: Capricorn Books, 1961.
- Eccles, W. J. *The Canadian Frontier 1534-1760*, New York: Holt, Rinehart and Winston, 1969.
- Gordon, William, *The Universal Accountant and Complete Merchant*, London: Alexander Donaldson, 1777.
- Hartley, E. N. *Ironworks on the Saugus*, Norman: University of Oklahoma Press, 1957.
- Historical Statistics of the United States*, Washington: U.S. Department of Commerce, 1960.
- Miller, Harry, *Canada's Historic First Iron Castings*, Ottawa: Queen's Printer, 1968.
- Nish, Cameron, *François-Etienne Cugnet 1719-1751: Entrepreneur et Entreprises en Nouvelle-France*, Montreal: La Corporation des Editions Fides, 1975.
- \_\_\_\_\_, "La Banqueroute de François-Etienne Cugnet, 1742: III. Cugnet et les Forges de Saint-Maurice (1)" *L'Actualité Economique* vol. 41, no. 4, janvier-mars 1966, pp. 762-810.

*Seventh Census of Canada, 1931* vol. 1 Summary, Ottawa; J. O. Patenaude, I.S.O., 1936.

Wurtele, F. C., "Historical Record of the St. Maurice Forges, the Oldest Active Blast Furnace on the Continent of America" *Proceedings and Transactions of the Royal Society of Canada*, vol. iv, sect. 2, 1886, pp. 77-89.