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Guide for Areas of Research in Management
at Hopewell Furnace

Obviously, in the restoration of a site such as Hopewell Furnace, the story of management is of paramount importance. By the very nature of things, the ironmaster's voice is decisive. Upon him fell the responsibility for the success or failure of the enterprise. It was he who made the vital decisions which determined not only the day to day operations of the furnace, but its future growth and development. He was burdened not only with the task of managing the furnace, but in addition, he had to provide for the myriad needs of his workers. Homes had to be provided, and it was incumbent upon the master to provide them. In fact, the basic necessities of life - food, clothing, shelter - had to be provided for, and again, it was the ironmaster's responsibility to arrange for these basic needs of the furnace community.

Essentially the ironmaster's task was one of administration. In the final analysis, too, the nature of his administrative talents, would be a basic factor in determining the ultimate fate of his enterprise. His resourcefulness, his ingenuity, his foresight, his determination, in other words, the sum total of traits which make up his personality and character, would be of immeasurable importance in the successful operation

of the furnace.

The administrator's task is a two-fold one: One is the formulation of policy which bears critically on the day to day operations of the furnace, and affects decisively its future development. Policy formulation is an inherent function in the administration of business enterprise. Such matters as finance, production, marketing and labor must be dealt with by the ironmaster. In most circumstances such is the importance of these decisions that their formulation cannot be delegated. (their?)

Another major responsibility of management, and in this case it is the ironmaster's, is the administration or execution of policy. The most broadly conceived policies are worthless, if they are not put into operation. The success of the furnace will be determined, therefore, not only by the correctness of the policies drafted, but also by the diligence and perseverance of the master in seeing that the policies are effectively executed.

Therefore, in order to retell the story of the furnace, it is necessary to explore the multitude of factors which affected its operations. Of these, the ironmaster's role must be fully examined. A number of questions can be raised, which if answered, will reveal more accurately what life was like at a furnace in the early part of the nineteenth century.

Important for the business as well as for the human story, is a description of the ironmaster.

1. What kind of a man was he? Can an attempt be made to describe him? Was he short? Or was he tall? Are there any portraits which depict him? What kind of temperament did he possess? Was he exacting, dictatorial, aggressive? Or was he kind, considerate, generous? Or both.
2. What was his background? Who were his parents? Where did they come from? What was their nationality? What was their economic position in the community? How much education did the master have?
3. Whom did he marry? How many children did he have? Did he go to church? If so, to which church did he belong?
4. Did he have any interests other than the furnace? Was he involved in either local or state politics, directly or indirectly? What were his political affiliations?

Vital, too, for understanding the history of the furnace is an understanding of the ironmaster as a businessman.

1. What was the nature of the ownership of the furnace? Was the ironmaster the sole owner? Or was the ownership shared among a number of people? Was it a partnership? Or was it a limited liability company? Or was it an individual proprietorship? Was it a family concern?
2. How was the capital raised for the establishment of the furnace? Did the ironmaster furnish the capital? Or was it raised through an association of friends? Did he take the initiative in raising the capital or was he merely acting as manager at the furnace for others who raised the capital? Was he salaried or did he receive a share of the earnings of the furnace? Did he receive a salary for his services as furnace master?
3. How was his iron marketed? Where was the major market for the products of the furnace? How did he contact his customers? Did he advertise? Did he have an agent in Philadelphia? What was the relationship of Philadelphia agent (if he had one) to the furnace? Was he (the agent) one of the owners? On what terms was the iron furnace products sold? Were they usually sold for cash or for credit? If credit was provided, how did the furnace manager arrange for financing? Did he carry the notes? Or did he borrow from the banks to service both short and long term credit?

To what extent did the furnace owners have to rely upon the banks, both for investment capital and for credit to handle the day to day operations of it? Or were the earnings the primary source of capital for expansion?

4. What were the various factors affecting production at the furnace? For instance, what determined the location of the furnace? Why this particular spot? What were his sources of raw materials? Where did the ore for the furnace come from? Where did the charcoal come from? Where the limestone? To what extent did the ironmaster personally supervise the production of iron at the furnace? Or did he rely on his founder for the workings of the furnace? How was the work force organized at the furnace? Who at the furnace was responsible for the allocation of jobs? Was it the ironmaster or had he delegated this responsibility?

5. Was he faced with the problem of the exhaustion of resources on his land? Was his wood supply holding up? Or did he rely largely upon foreign sources for his wood? If so, how did this affect costs at his furnace? Were his sources of ore sufficient? Or did he find it necessary to purchase his ore from others? How did this affect costs at the furnace? Were there any indications that his costs were rising as a result of depletion of resources?

6. What was the average production in tons of pig iron per year? Can it be broken down into the rate of production for man days of work?

7. Some of the questions with regard to labor would quite naturally duplicate those prepared on the Guide for labor. How efficient were the workers at Hopewell? For instance, how did the iron produced (quantity) compare with production in other furnaces in the area? Was there any scheme of incentives to increase production? Was there any scheme of penalties either for falling down on production or for producing faulty iron and damaging the furnace?

8. How did the quality of the iron produced at Hopewell compare with the other furnaces in the area? How were the operations at the mine supervised? Were those directly under the ironmaster, or had he delegated responsibility? Was most of the mine done by contract? Was most of the charcoal done by contract? Or did the ironmaster personally supervise the work of the collyers and the charcoal makers?

obligations did he feel toward his fellow ironmaster? Had there developed a code of conduct between the ironmasters? Did he take pride in the quality of his products? What, if any, sense of obligation did he have towards the merchants who handled his products?

For an investigation of the various problems raised here, the sources will be much the same as those indicated in the guide for research on labor at the furnace, and will prove as scattered and elusive. Any correspondence will prove of great value. It will be necessary to research every club. A check of the names of the various individuals who corresponded with the ironmaster should be undertaken at the various repositories such as the Pennsylvania Historical Society, the Berks County Historical Society, the Ridgway Branch Library, the Chester County Historical Society and the Archives of the Pennsylvania Historical and Museum Commission to determine whether any of the correspondence has been preserved.

Since the ironmasters were involved in litigation the court records may prove to be of considerable interest. A check should be made of the Berks County Court House to determine whether they have been preserved for the early years. In addition, it would be well to go through the House and Senate Journal for the State of Pennsylvania for the appropriate period to ascertain the relations of the ironmasters to the State government.

The furnace had connections with the Reading Bank. This would be worth investigating. It is possible that either the bank or one of the local repositories has pre-

9. To what extent did the ironmaster or the owners take into consideration the depletion of their resources as an item of cost? Did they make any allowances for damage?
10. How did the operations of the store relate to the total picture? Was the store simply to meet the needs of the furnace community, or did it serve, too, as a means for disposing of the furnace products? Who was responsible for the management of the store? Did the ironmaster supervise this personally, or was it under a hired hand? Did the store operate at a profit? To what extent did the store's profit (if there was any) figure in the total profits earned by the furnace?
11. What were the profits earned by the furnace (this is, of course, assuming that the furnace did pay a profit)? What was its rate of profit? How did the profits at Hopevill compare with those earned at other furnaces?
12. Is it possible to arrive at any judgements regarding the capacities of the ironmaster as a businessman? Is it possible to evaluate his ability as a businessman with the type of policies with regard to finance, marketing, labor and production which he pursued? Were his policies on credit and finance consistent with what might generally be regarded as good, sound practices for that particular day? Did his policies with regard to labor suggest sound management? Did he in marketing his products exploit as efficiently as possible the existing markets? Did he make any effort, at all, to expand his markets? Did he go after his customers? Or did they come to him? Did he foresee the depletion of resources? Or was this ever a problem for the furnace? Were his land acquisitions such as to add to the total worth of the furnace and provide for its continual operation and growth?
13. What was the attitude of the iron master to technological advances? Why, for instance, did not Hopevill convert to Anthracite? Why not the hot blast? Was he accommodating the furnace to enormous changes taking place in ironmaking and in the economy? In this respect were his policies very much different from the other ironmasters in the district? Was he an innovator, that is, to what degree did he introduce changes in production and in technology, or was he inclined to continue with traditional methods?
14. How does he stand with his peers? And how does he as a businessman stand with his peers? What was his attitude toward his role as an ironmaster? Was it more than a profitmaking institution to him? What obligations did he feel toward the furnace community? What

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served some of the old bank records. This source, if located, might offer revealing insights into the finances of those early furnaces.

Other standard sources should be investigated. Newspapers, of course, are important. A perusal of their advertisements might indicate the position of the Hopewell stove in that particular market. Any references to the iron trade or to the ironmaster should, of course, be noted.

Guide for Areas of Research in Laborat Hopewell Furnace

In the restoration of an historical site, even more vital than the buildings and artifacts is the story of the people who breathed life and gave meaning to the enterprise. Therefore, it is imperative for a complete restoration that an account be made of the men who drew the iron; cut and coaled the wood; drove the teams; who had hopes and dreams and sorrows and heartbreaks; and died; of the women who bore children, tended the pigs and cows; coaxed their little ones to school and to church on Sunday, and who dreamed, too, of a better life; and died. Without them the land would still lie in its pristine state.

The story of the wage earners, then, on the furnace must be told. First, and obviously of considerable importance, is his work. A number of questions must be explored to bring out the full story of the lives of these humble people.

1. How were these workers recruited?
2. From where did the ironmaster recruit his founders, fillers, and the more skilled hands around the furnace?
3. What inducements did he offer to attract them to his furnace in a comparatively isolated and wilderness setting?
4. What was the nationality make-up of the work force, as best as can be deduced from family names (realizing the inadequacy and inaccuracy of this particular method)?
5. To what extent did the ironmaster rely upon a floating labor force drawn from the surrounding farms for his workmen?

- 6. What was the nature of the wage contract? Was it a formal written agreement? Or was it merely a verbal arrangement between the individual worker and the ironmaster?
- 7. Was it legally enforceable? Is there any extant evidence of either the ironmaster or the wage-earner being haled before the courts for failure to fulfill the terms of the contract?
- 8. What were the wage rates? How did they compare with rates being paid at the other furnaces in this area? Did they vary from individual worker to individual worker? If so, what were the factors which would account for individual variation in wage rates? Was it merely the whim of the iron master? Was it based upon the varying skills of the different workers? Was it based upon age? Did family relationships have anything to do with different wage schedules?
- 9. What were the compensating fringe benefits offered to the workmen which would affect wage picture? For instance, were housing and pasture and fuel an integral part of the wage-bargain, or were they a separate cost item for each worker? Obviously, this would determine his real wage?
- 10. How was the work force organized at the furnace? How was efficiency of production insured? What means did the ironmaster possess and utilize for maintaining discipline at the furnace and insuring continuous and efficient production?
- 11. Were there any evidences of discontent at the furnace works? If so, what were the causes for the discontent or dissatisfaction? What expression did it take?
- 12. What was the attitude of the men toward the ironmaster?
- 13. Conversely what was the attitude of the ironmaster toward his workmen?
- 14. Had the men developed any articulate attitude toward their role at the furnace; in the community?
- 15. How mobile was the work force? Was there any indication that labor shortages affected the operations of the furnace? From the records do family names tend to persist year after year or is there a considerable change in the work force from year to year?
- 16. Were there any grievances? How were they handled?

17. What procedures, if any, were there for upgrading the men at the furnace? How was the selection made for rising from the laboring ranks into positions as founders and fillers? Was family relationships the determining factor? Or were there other means by which individuals had an opportunity for moving into more responsible positions?
18. Had any formalized procedures been established for the training of hands for the more skilled positions? Was the responsibility for training assumed by the ironmaster or by the workers themselves?

Life is more than work, and the complete story of the ironmaster is not told unless some effort is made to recapture the ordinary activities which rounded out the routine of his life. Again, there are a number of questions to be explored which, if answered, would offer revealing insights into the life of these early ironworkers.

1. What proportion of the workers were married or unmarried?
2. Was there any correlation between the responsibility of a worker's position and his married status?
3. What was the age range of those workers?
4. Whom did the iron workers marry?
5. How many children did they have?
6. To what church did they belong? To what extent did they attend church?
7. Was there any correlation between their church affiliation and that of the ironmaster?
8. What was the ironmaster's role at the weddings, the births, christenings and deaths?
9. What type of schooling was provided for the children of the workers? If possible, how much schooling were the children of the ironworkers subjected to?
10. What forms of recreation were available to the ironworkers?
11. Were there community and church socials?

- 12. What holidays were celebrated at the furnace? And what were the nature of the celebrations?
- 13. Was hard liquor consumed in inordinate quantities? Was consumption of alcoholic beverages (drunkenness) any problem at the furnace? How, if there was such a problem, was it dealt with?
- 14. What was the standard of living? (This can possibly be gleaned from the account books of the ironmaster's store). What items were purchased most frequently? To what extent did they purchase luxuries?
- 15. What was the economic position of the workers at the furnace? Were they able to save money? Or were their earnings absorbed in daily living? Were they in debt to the ironmaster's store?
- 16. What provisions were made for the care of those injured at the furnace?
- 17. In the event of the death of the breadwinner was there any form of compensation or consideration for the widow?
- 18. Were funerals social events? What was the role of the ironmaster in such a situation? Where were they buried?

It is much easier to raise questions than to answer them. These represent an inarticulate group of people and therefore the records surrounding their daily living are few and scattered. But from a variety of sources information can be gleaned which will, at least, give a clue to some aspects of the life of the iron worker.

The Journals, ledgers, cash books, waste books and other furnace records provide invaluable sources for recapturing the lives of these early workers. These are to be found scattered throughout the various local historical societies in southeastern Pennsylvania. Berks County Historical Society and the Pennsylvania Historical Society possess the largest collections. Both the Chester County Historical Society and

the Archives of the Pennsylvania Historical and Museum Commission also have a large number of records pertaining to the early iron industry in Pennsylvania. Whether they have Hopewell records is problematical. In addition, contemporary newspapers provide another vital source for gleanng information about life in early nineteenth century America. Court records and wills and deeds will suggest answers to some of the problems raised. Church records, if they are available, can be of great significance, particularly as far as the social life of the people is concerned. Here, of course, much can be learned about marriage, births and deaths.

Any diaries or any correspondence, either of the ironmaster or of the workmen, (and this is highly unlikely) will prove of enormous value in enlightening the public on life in early nineteenth century America. Oral reminiscences, although of great value, must be utilized with utmost caution. If they can be verified by other sources they can prove of considerable value. For the record, it is important that some systematic effort be made to make a permanent record of these accounts so that they will not be forever lost. Whatever folklore has developed about the furnace can, if used intelligently, add to the total store of information and thereby assist in arriving at a more accurate picture of conditions as they were in the past.

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