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Making Steel: Understanding the Lived Experience

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Article abstract

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MAKING STEEL: UNDERSTANDING THE LIVED EXPERIENCE

Elizabeth Beaton[1]

ABSTRACT

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RESUMÉ

Cet article décrit le "Projet acier" mis sur pied par le Beaton Institute du Cap Breton. Inspiré d'un point de vue phénoménologique, ce travail vise à comprendre la nature de la technologie de fabrication de l'acier et de la place des travailleurs dans ce processus. L'analyse se fonde sur des entrevues et d'autre sources documentaires.

The principles of making carbon steel are simple. Iron ore is changed to a solid solution of great tensile strength through processes which use carbon from coal and limestone as a cleaning agent. Heat and air are essential to the transformation.

The processes of steelmaking are complex. They take place in huge, and highly technical 'factories' that are frequently dangerous and always noisy. The processes require hundreds of workers using great skill in a myriad of different jobs. In the coke ovens, coal is transformed to a strong, porous form of carbon called coke in sixteen ton ovens at 2300 degrees. Pig iron is produced in the blast furnace under enormous air and heat pressure, each 'cast' amounting to 300 tons of hot metal. In the open hearth, the pig iron is refined through the addition of carbon and the deletion of other elements such as silica and sulphur. The process of the open hearth gives steel the characteristics required to mill products such as rails, wire, and ship plating. This, of course, is a simplified and narrow description of steelmaking; alternate methods such as the Basic Oxygen process modifies somewhat the principles given above.

1 Beaton Institute, University College of Cape Breton, Syndey, NS B1P 6L2.

Cape Breton's experience of steel making began in the 1890s when Boston Industrialist H.M. Whitney chose Sydney as an ideal place for making steel. The Cape Breton coal fields which he controlled were some of the largest on the continent. Limestone was available from several Cape Breton locations and iron ore was close by at Bell Island in Newfoundland. Sydney was blessed with a deep water harbour on the Atlantic Ocean suitable for receiving raw materials and for exporting finished steel.

In 1899 a world class integrated steel plant was completed on 480 acres of Sydney's harbour front. A coke ovens battery of 400 Otto-Hoffman Ovens, four blast furnaces with a combined capacity of 1200 tons, and ten 50 ton open hearth furnaces resulted in Sydney being labelled the 'Pittsburgh of the North.' In the ensuing eighty-nine years there were many modifications and improvements, including new mills, furnaces and coke ovens, a forge, foundry, a machine shop, boilers and generators. But the mode of basic steel making remained the same. It was not until 1989, when Sydney became a electric arc mini-mill, that steel making changed dramatically. For almost a century, steel making has been a way of life commonly understood by generations of working people.

The people who came to work at making steel in Cape Breton in the early 20th century came from all parts of the world. Skilled tradesmen came from the U.S. and Britain; so-called 'unskilled' labourers were recruited from Eastern and Southern Europe, the Mediterranean, the Caribbean and Newfoundland. Rural Cape Breton and the wider Maritime Provinces provided a mixture of workers fresh off the farms and tradesmen such as carpenters who had already tasted the migratory work experience. Many such skilled workers returned 'home' from the 'Boston States' to become part of the Cape Breton industrial boom. Other migratory workers were Italian construction workers who came to build the steel plant with the Boston-based contractor Thomas Cossolini. Families followed the workers and soon, communities grew around the work at the Sydney steel plant.

Understanding steelmaking is the aim of the 'Steel Project' at the Beaton Institute of the University College of Cape Breton. The Steel Project uses a particular methodology which is based on the phenomenological approach to the study of 'lived experience.' Initiated in 1987 to document the steel industry in Cape Breton, it deals with a wide variety of materials. To date the Steel Project has acquired -- through its own creation or through donation-- some thirty metres of business papers, thirty hours of video tape and film, 250 interviews, 4000 photographs and about 100 maps and plans. Artifacts are being identified for possible interpretative use by community groups. Along with a program of collection, the Steel Project has undertaken specific research, including a study of steel making skills and the detailed identification of graphic materials.

Steel Project researchers immerse themselves in the technology of steelmaking. Their comprehensive knowledge of the processes is based on articles in academic and trade journals, and workers' manuals; video tapes and films; tours through the plant; lectures and courses; and most important, frequent presence at the steel plant. Inevitably, close relationships are formed with a small number of steelworkers whose deep understanding of the goals of the Steel Project is a genuine asset in terms of consultation and moral support.

Researchers not directly attached to the Steel Project are using its resources to do specific work, including a study of women in the steel industry and a comparison of the work experience of Italian steelworkers between the steel cities of Sydney and Hamilton. Steel Project resources also contribute to museum exhibits.

Community involvement is an important part of the Steel Project's strategy. There are frequent meetings with Sydney Steel (SYSCO) management and the Steel Project uses office space at the union hall of the United Steel Workers of America, Local 1064. The Steel Project Advisory Committee, made up of steelworkers, management, union representatives and business people meets to hear research reports or lectures on subjects related to steelmaking. The general public is kept informed of the Steel Project's activities through media coverage. In 1990, the Beaton Institute and the Division of the Extension and Community Affairs sponsored a credit course on the North American Steel Industry.

The Steel Project's philosophy is best exemplified by its oral history program which effectively complements its visual collection as well as the plant's business papers. For the past year there has a steady stream of retired and current steel workers being interviewed at the Beaton Institute or at the union hall. These interviews will continue for another year.

The steelworkers are informed of the Steel Project and its interview program by letter, followed by a phone call. The cooperation of steel wives is often useful in setting up interviews. For obvious reasons it is easier to make arrangements with retired workers than with shift workers trying to grab some sleep and family time. As well, periods of technical frustration at the new plant can result in reluctance by current workers to be interviewed. When the technical problems are solved, however, there is greater enthusiasm for the Project. Although the Steel Project's relationship with SYSCO management has been generally amicable and cooperative, interviews with management personnel are always on a more cautious level than with men from the shop floor. Nevertheless, recent positive developments in the start-up of the new plant have opened some avenues of information in terms of management interviews.

Language is inherently the most important single aspect of the oral history interview process. In the Steel Project, linguistic style and content includes technical

jargon. The colloquial language of steelmaking not only links workers in the same plant, but it links steel workers across the continent. It is the responsibility of the interviewer to collect this language, but also to clarify it in lay person's terms. In the Steel Project, it soon became evident Project that female interviewers had more success with this than male interviewers. Steelworkers found it easier to explain terms to a woman who wasn't supposed 'to know these things.' Male interviewers also sometimes had difficulties displaying ignorance to another man.

One of the primary goals of the interviews with SYSCO steelworkers is the 'deep description' of jobs, equipment and technology. However, a wide range of other information presents itself as a result of questions about work. Objective descriptions of job and equipment become subjective realizations of skills, of attitudes towards work, working conditions and fellow workers, of feelings such as anger, fear, pride. These are not compartmentalized, but are an intrinsic part of the job itself. They are also part of the life of the steel worker.[2]

An explanation of the coke ovens operation begins: 'This is where the coke was made. The ovens were brick construction. They are 1 1/2 feet wide and ten feet high and they hold about sixteen tons. The ovens are heated from the batteries themselves ... You have a space between the ovens. The gas is burning between the ovens ... You don't burn the coal as such. You have a red hot oven and you put the coal in the oven and you seal that oven. The gases are sweated out rather than burned out.'[3] The gases referred to are the volatile constituents of coal, driven off by heat. The rich coal gas is re-cycled as fuel or becomes by- products such as tar, ammonia salts, or benzol in the by-product plant. The speaker, Joe Keller, of Hungarian background with grade eight education, had some forty years' experience in coke ovens at Sydney Steel. His proudest achievement is a workers' manual for the By-Product plant and his interview includes a detailed description of the coke ovens by-product plant.

But his most vivid memories are of charging the ovens with coal from the top of the battery: 'I was up there myself a few times... very hot up there, very hot up there. I never blacked out myself but I was pretty hot. Pretty hot up there. And

2 The interview technique would be known as 'unstructured' and 'open-ended.' The interviews use a guideline questionnaire which leaves scope for expansion on topics suggested in the course of discussion. For further explication of the interview methodology see unpublished reports by Steel Project researchers, Diane Chisholm and Michael Earle.

3 Transcription method: Interviews are transcribed as spoken, using standard spelling. In this paper '...' indicates words deleted, but this deletion does not alter the meaning of the passage, nor the sequence of the spoken passage. Questions asked by the interviewer are indicated by '[ ]'. All transcribed quotes are used with the permission of the interviewees.

sweat! Boy, I'm telling you. That was really something. Of all the places, I think that's the closest thing to He-- anybody wants to see.' He went on: 'The wind is from the south. And the old days the stand pipes were open and the gas would catch fire, you know... The flame would be overhead. And you got to go underneath and try to get these covers on. Because if you put that fire out, then the fire is in front of you. So you burn me on top or burn me on the bottom.'

The listener is provided with images of heat and dirt and danger, but as retired coke ovens supervisor, Donald Puddicombe pointed out, safety gear was minimal in the early years: 'The coke ovens is a hard place to wear safety equipment. If you've got a mask on and you're breathing and it real hot. A lot of them didn't wear it unless they were forced to wear it by their superiors.' Foot gear was easier to handle. Joe Keller: 'Your feet would burn up, your boots would burn up. So they had what you'd call clogs. Most of them were big. You either wore them big like that. A lot of them fixed them so they could walk around no problem at all. A lot of fellows used to put tires soles on their boots. And worked like that.'

Bennie Delorenzo, who retired as Head of Plant Safety last year after 46 years of service to the steel company, also recalls his experience on the top of the battery: 'Up on the battery, charging. I done that loads of times, clean up the battery on top. You got to open the hole when he charges the oven, when the larry car charges the oven. Got to sweep all the debris into the hole. That's when they make that big PUFF! and then you have to get the covers back on. They had a little bucket of mud, you just poured it around to seal the hole. Them days it was awful leaks in it...'

Ethnicity had a lot to do with Benny Delorenzo and Joe Keller working at the coke ovens. Hungarians, Italians, Blacks and Ukrainians usually got started at the dirtiest jobs at the steel plant. Many stayed there for their entire lives. Benny's biographical data is representative of many of the immigration stories: 'I was born in Sydney. My parents were immigrants from Italy. My father immigrated in 1909 [from Abruzzi Province on the Adriatic Coast]. Then, of course, before he got ready to send for her, then the First World War came. And my mother didn't arrive till 1919. The first one was born in 1922, I was born in 1926 and was brought up in the Pier area [a community next to the steel plant] which was very immigrant oriented. The larger groups at the time were the Italians, Polish and Ukrainian. Then they had a smattering of Slovaks, and Hungarians and some Scandinavians... I suppose everybody felt more comfortable in Ward Five, this is the area where all the immigrants chose to live. There was a large coloured population too... West Indian people. All came to work at the steel plant. That was the attraction.' Subsequently, Bennie talked about the job opportunities for the immigrants. All of them started in the general yard, i.e. they had to appear each day and hope for a shift. Blacks were not hired at the more elite sections of the plant, such as the open hearth or the lab, until the

1970s. Bennie's dream was to be in the electrical section, which required thirty days work before eligibility to the union was granted. He found that he was always given just twenty-nine days before he was sent back to the yard. Bennie endured this indignity for two years, before returning to the coke ovens. He knew of a Polish worker who waited eight years of twenty-nine day stints before acceptance into the electrical department. In the past fifteen years, the attitudes have changed rather dramatically. Today, the son of a Ukrainian immigrant is the president of the plant.

The blast furnace was even more notoriously dangerous than the coke ovens. Johnny Martell, of French Huguenot stock --as he said 'from Charles the Hammer, banished from France, shady characters' -- worked first in bricking the open hearth, and cleaning the open hearth 'runs' or flues, then at the docks loading rails into ships. He tells of being called from the yard to the blast furnace: 'I was drafted to the blast furnace in December '71. It was just before New Year's. They needed people and nobody was applying. [Why was no body applying?] 'Because it was put out around the plant that if you went to the blast furnace, your life was over. I thought I was finished. You know, you heard of explosions and the side of the furnace blowing out, stuff like that. That stuff happened too. I don't know what it is , but after you're there for a while, you don't become immune, but you sort of accept this as the thing that's going on. And if you'll be careful and watch yourself, you'll be one of the lucky ones.'

Martell took the recognized succession of jobs, from spare man on the furnace to second helper. His description of a second helper's typical day indicates that manual labour could still be very much a part of steelmaking in this modern era. He tells of cleaning the passage for the hot metal after it left the furnace at some 3000 degrees: 'On day shift the first thing you would do when you came out is raise the trough. [What tools did you use?] A jackhammer, a sledgehammer, a bar. They had a huge bar for what they called "bad stickers.". You'd have three or four guys trying to stand on the end of it while somebody held it in place to try to wedge this thing out of the ground or maybe the runner. [Why would you be trying to raise the trough?] Well, every day, you would have to raise the trough and prepare it because if not, the molten iron would burn a certain part of it out and you'd have a pool of iron there, and when it hardened it just stayed there. If you don't clear it everyday, then it would just continually, every cast, eat down further into the trough. The trough was made up of bricks and mortar and it was probably a metal frame. [How big was it?] I'd say probably about eighteen feet long -- between fourteen and eighteen feet long, and maybe three feet deep and maybe six feet wide; something like that. The basic trough was laid down and it would be all brick and everything else. Then you had fire clay and flue dust and you would line it and then you have to dry it up.' He went on to tell how it would

Photograph 1: '...there was a giant lever, it weighed about 40 pounds -- and you'd have to put that in and you would open up the ladle and fill every mold up to a certain point.'

be dried. 'If you dried it properly it would last a day, and if you didn't dry it properly, the first cast that went over, it would blow all to blazes on you.'

Johnny Martell went from second helper to crane man. He learned to operate a crane called the 'hurdy-gurdy' -- 'It was a little crane that was about twenty, thirty feet up in the cast house, like a little box'.[4] He remembers that he was a bit cautious in his new job, and soon the keeper and the slagman were complaining that he was too slow. ' 'Why don't you move this thing a little faster?' I said, 'You want fast, I'll give you fast'. And I took off down the end of the cast house, and when I hit the corner all hell broke loose. You're supposed to slow down for the corners and I didn't slow down and the whole thing just twisted. The sparks were flying everywhere! Fortunately I wasn't hurt, and I poked my head out of the window ... of the hurdy gurdy and I said, 'How's that for fast?' We were down for about two shifts, I guess.'

At the open hearth furnace, Polish immigrant Steve Sokol carried out a specific job on the ingot moulds at the 'back' of the furnace. He explains: 'Okay, first of all, the furnace is where the steel is made itself, and once the furnace was ready to tap out, they would have a large ladle under the furnace and they would fill up that ladle. They would take it over to the pouring stand. The pouring stand was about six feet off the ground and right next to it was a set of tracks by the pouring stand, and on the tracks were cars filled with molds, empty molds. And the ladle full of steel would come over and we would - there was a giant lever, it weighed about forty pounds - and you'd have to put that in and you would open up the ladle and fill every mold up to a certain mark. Depending on the steel, the mark would be a different height. So you pour that into the molds and then once the ladle was empty, then you'd have to go and if there was any scrap or what they call "skulls," that would be the steel hanging on the side of the ladle to the brick, you would have to empty that and take the ladle down to cool off.

'Then you would come back and check all the molds and re-stock the stand again for the next furnace to be tapped out. Like, there was a different stock that they used all the time. And then after, you would clean off your stand just with a hose. You'd wash it down to get rid of all the dirt and dust.' He was matter-of-fact about the details of his job, and even about a serious recent injury.

But his recollections of beginning work at the steel plant express fear and awe: 'There's no comparison! My first day in the open hearth... There was flames shooting all over the place. There was cranes going overhead. There's two charging cars going back and forth, and they don't stop. They toot their horn and if

4 Blair Caume, interview.

you get out of the way, fine. If you don't get out of the way --... If you're there for a while as soon as you see them coming, you don't wait for the horn, you just move out of the way. But there's no comparison -- flames everywhere! You'd think that you were - I don't know. It's different for somebody that walks from the street into that. I don't know how to say it.'

Colin Waye compared the open hearth to other parts of the plant in terms of hard work. 'I worked all over the plant. The open hearth was the big labour spot because of the open hearth furnace -- all the brick. There was always a furnace down and a lot of brick layers and brick helpers and you'd go down with the brick helpers passing brick in a line up to the top of the furnaces. Well, first when a furnace came off, you'd have to go in and smash in the roof and the walls -- tear it all apart. [Using a sledgehammer...?] Using a sledge hammer and bars, and going in the furnace which was still hot, you'd have to put wooden sandals on your boots to keep your boots from burning ... It was dirty and dusty. It was hard labour work. There's no denying that. A lot of jobs that I worked on in the early days were basically pick and shovel...

'You'd go up on the furnaces and you'd have to -- when they put the steel in the furnace -- and they'd pour it out the back, and a runner that it goes out, and you'd have to use all kind of ... bars and things like that to clear the old slag off and cement it up again. Doing all the shovelling and labour work around the furnace... I can remember when I was there, there a lot of the older people that couldn't speak English at the time. Ukrainian and Polish people there...'

Over and over, steel workers stressed that moisture was always the greatest threat in the steel plant. '...And once the steel was poured out of the furnace into the ladle it was poured into ingots at the back of the mill, and we would pour tests into little blocks with a big spoon and take it up to the lab for testing. And I remember one time there was water in the block and you can't put hot steel on top of water. I still got the scar on my foot -- a hole right through the top of my boot...'[5]

'...One of the fellows who was with us, it was near the end of the shift, and he wanted to go back and pick up the test we had poured. So he went back and the thing blew up and he got caught right around his waist with liquid steel and it burnt him. And he was on fire and he started running up after. He was pinned against the wall and he sort of took off running, so I remember I ran after him and I tackled him and as I was putting my hands on his legs trying to put the fire

5 Colin Waye, interview.

Photograph 2: Coke Ovens. 'You got to open the hole when ... the larry car charges the oven. Got to sweep all the debris into the hold. That's when they make that big puff! Then you have to get the cover back on. They had a little bucket of mud, you just poured it around to seal the hole.'

out, every time I moved my hand away his skin would come off... He was about a year and a half getting skin grafts.'[6]

An explosion caused by moisture killed three men at Number One blast furnace in 1983. '...The blast furnace was really in very poor shape... they were having all kinds of signs [What signs?] Well, it was leaks all over... they had seen some steam coming out...'[7] According to Benny Delorenzo, Head of Safety at the time, two men might have saved themselves but they went back to get their buddy. 'There were three of them killed -- Big Jim Sheaves, Henry Gear and John Farr. They were burnt with the violent explosions coming from the slag pit...Romeo and I and Alonzo found them late that evening when it started to cool out. The cast house was just filled. The furnace emptied out into the cast house when she let go. Hot coke and all. We couldn't get near. We found them just outside the building. They were burned very badly. Jim Sheaves had Farr in his arms like that [motion like holding a child]. They were burned right to a crisp. And we found Henry Gear on the slope of the ramp... When Romeo and I were picking him up, one of his arms fell off and he was right hot.'

Yet, in the face of horrible possibilities, the workers had a serious committment to their jobs. Johnny Martell: 'There was give and take. Conditions were bad but you got good breaks. And when you didn't get good breaks --when you had rotten clean-ups and stuff like that, you went and you did your work.... Yes, when you're working the furnace -- people working for thirty years down there, you knew when the cast was over if you had a good cast or a bad cast.'

Furthermore, the men in the steel plant exercise control over their work. 'And of course we used to play Rummy and Tarabish down in the shack. And one of the general foremen -- I won't mention any names -- he wasn't too happy about this. Others could care less, but this fellow here, he figured this wasn't the thing to do. And probably it wasn't, but working under conditions like that, the guys had a little bit of time to play cards -- so what? He went to the master mechanic of the department.... The master mechanic just looked at him and said, "Are you having trouble getting your cast out? You're cast not getting on time?" "Oh yes, it's all being done." He said, "Leave the men alone. They're doing their work." '

The steel workers' attachment to their work place and to the work experience went beyond the job. Johnny Martell recalls the experience of returning to the blast furnace a few months after it had closed down in 1989. 'I walked into the

6 Ibid.

7 Benny Delorenzo, interview.

warehouse and it was completely empty. There was no thread machines, there was no work table, and the old drill press that was there for a hundred years, turn of the century type thing, that was gone. Even the shack upstairs. They had built a lunchroom on the upstairs platform for the guys because there was so many that one lunch area wasn't enough. So they had built a shack. The whole shack was gone. It was empty. And I walked into that and what a feeling that came over me -- a place where I had spent fourteen years working and talking to guys and changing clothes. I just looked around and I almost got shaky.'

The change to the electric arc mini mill at SYSCO turned upside-down the culture of work at the plant. Not only were there massive lay-offs, but the workers who remained -- between the age of thirty-five and fifty -- had to learn to operate an entirely new and automated plant. There were numerous training programs, carried out at University, at the plant, in a local motel by Tippins, the construction contractors for the new plant, and also in Germany and France. Not all of the training was successful and the frustration level was high for many months after the 'completion' of the new facility. During that time, it was virtually impossible to find a currently working steel worker who was willing to be interviewed. As the steel making operation became smoother, workers were once again willing to give their views.

An early interview with a pipefitter in the new mill tells of some of the concerns: 'I'd rather have the blast furnace. I'll tell you. We had a job yesterday; we had to change an elbow on the side of the [electric arc] furnace, and when we got down there the top of the furnace was off and they were taking scrap out of the furnace. So we started working on this thing, got it all together and changed the elbow that we wanted and put it back in place. Before we had a chance to put it back in place, they had done whatever they wanted to do with the furnace and they brought the top of the furnace back around and the big probe was coming down.

'The power that goes through there is out of this world, and we're scared to be around the furnace. Some people say, "Don't go near that furnace when its operating - the electricity can bolt out anywhere!" You've got people, especially the Americans, the higher-ups, saying that there's no problem. Don't go near the top of the furnace but you can work along the side of it. Like, I'm there yesterday, and I said to the guy, "I'm scared to death. I'm not going near that furnace." My buddy was already up there when the first arc struck, and it's like thunder! It's like being in a room where there is actually thunder going. That scared him and he jumped. Just not feeling right about it. You're scared you're going to be electrocuted or something. This fellow from Tippins comes and says, 'There's no problem there. Give me a wrench and a pair of gloves.' and he's up on the side of the furnace.

'The supervisor called me out of the main room into a quieter room. "These people claim there's no problem with this. Our Health and Safety Committee is checking with different furnaces around to see what they're doing." I said to him, "That's fine for you to tell me that right now....I've had people working with Tippins tell me that it could fly out the door... I don't want to be the first guy to find out that it's not safe." '[8] Many of the problems of safety and operations in the new electric-arc operation occur because there is no tradition of knowledge available on this type of steelmaking, certainly nothing that compares to the traditional knowledge of almost a century found in the old plant.

There is no shortage of scholarship on industry in Canada. Both documentary and oral history research has dealt comprehensively with industry in terms of the political economy, labour/managements relations, unions, strikes and the labour movement, and even business history. If there is a shortfall, it is in describing and understanding technology, and also the culture of work as it pertains to the 'shop floor'. A significant beginning has been made by Tamara Haraven, who used oral history in her study of a textile mill in New Hampshire.[9] Other studies even more directed to on-the-job experience have been undertaken by Diane Newell about the fishery in British Columbia [10] and by Hugh French of Maine concerning fish processing in Black's Harbour, New Brunswick.[11]

The Steel Project attempts to grapple with the technology of the steel industry. To do this, the voices of the steel workers are heard alongside the sights and sounds of steel making. Thus, oral history joins with the study of material culture to give a more complete 'industrial archaeology' of steel making.

The methodology of the Steel Project comes from the philosophy of 'phenomenology' defined by Herbert Speigelberg as a means for discovering 'truth'; it is 'an intuitive method for achieving insights into essential structures'.[12] Heidegger, in

8 Johnny Martell, interview.

9 Tamara Haraven, **Amoskeag: Life and Work in an American Factory** (1978).

10 Diane Newell, **The Development of the Pacific Salmon-canning Industry: A Grown Man's Game** (1989).

11 Hugh French, 'Sardines from Europe to Passamaquoddy: A Study in the Diffusion of Technology'. Unpublished M.A. Thesis, U.niversity of New Brunswick, 1988.

12 Herbert Speigelberg, **The Phenomenological Movement** (1965), 2 vols.

his *On Time and Being*, stressed the unity of the physical environment, with the artifact --what humans create-- and the core of the human being, what Heidegger called 'being-in-the-world'.[13]. The human sense of being cannot occur except in the framework of an encompassing world with which the human has an integral connection. All consciousness is consciousness of something. 'No hearing without something heard, no believing without something believed,... no striving without something striven for, etc.'[14] Humans, as the centre of their situation, cannot know themselves without appreciating their surroundings, and the historical and cultural context from which they come.

Knowledge of self is active and intentional. Humans exercise a creativity within the constraints or flexible boundaries of the 'biographical situation', i.e 'an historical epoch, a location, a family, a class, an ethnicity, a culture.' [15] As Sartre points out, man's situation is not what is done to man, but what man does with what has been done to him.[16]

Phenomenology is concerned with people and their experience; It is both dynamic and ambiguous in its depiction of everyday life, life itself characterized by flux. Phenomenology offers to scholarship a critique of positivism, and also an alternative to positivism. It is subjective, value laden, non-linear and full of contradictions. It presents a radical methodology, described by Ley as 'thorough inspection, analysis, and description of the life world as it is encountered'.[17] Indeed, it offers a way to understand the lived experience.

Steelworker Johnny Martell articulates his experience: 'Sometimes you'd go to work in the summertime and it would be eighty-five degrees outside and maybe it would be 140 in the cast house. And you worked in that. It wasn't very nice sometimes. And if you were working on the trough on those days, you were probably working in -- I can remember standing on a plank in the trough more times than I can count, when the darn thing would go on fire, it was that hot. And you'd be standing on maybe an eight inch plank and you were operating a jackhammer cutting both sides of the bottom of the trough out, in that kind of heat and dust and dirt. [He laughs]. It was a living!'

13 Martin Heidegger, **On Time and Being** (1972)

14 Speigelberg, **op.cit.**, quoting Husserl.

15 David Ley, **A Social Geography of the City** (1983).

16 Marvyn Samuels, 'Existentialism and Human Geography', in David Ley and Marvyn Samuels (eds), **Humanistic Geography:Problems and Prospects** (1978).

17 Ley, **op. cit.**

It was more than a living. It was a life.

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