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***Skills, Qualifications and Training in the British Steel
Industry: A Case Study***

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Global Political Economy (GPE) Research Group

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The aims of the project are to:

1. Promote Lifelong Learning within the European Steel Industry
2. Support workers' adjustment to new ways of working.
3. Promote equal opportunities.
4. Support workers' adjustment to new technologies.
5. Provide workers with transferable skills.

In meeting these aims the project undertook the following:

1. Mapped existing qualifications using new and existing research to ascertain the level of need in new and transferable skills.
2. Developed transnational qualification modules comprising new and transferable skills.
3. Developed an on-line training programme.

The duration of the project was three years, from December 2000 to November 2003.

The research for the Reports was undertaken by: Peter Fairbrother, Dean Stroud, Amanda Coffey, Jan Clark, Jenifer Daley, Nikolaus Hammer and Steve Davies, with contributions from all partners.

The Reports are:

1. New Steel Industry Challenges
2. The Internationalisation of the World Steel Industry.
3. The European Steel Industry: From a National to a Regional Industry.
4. The Changing European Steel Workforce.
5. Skills, Qualifications and Training in the German Steel Industry: A Case Study
6. Skills, Qualifications and Training in the Italian Steel Industry: A Case Study
7. Skills, Qualifications and Training in the Netherlands Steel Industry: A Case Study
8. Skills, Qualifications and Training in the Polish Steel Industry: A Case Study
9. Skills, Qualifications and Training in the British Steel Industry: A Case Study
10. Future Skill Needs in the European Steel Industry
11. Training and Qualifications in the European Steel Industry.
12. The Question of pan-European Vocational Qualifications
13. Equality and Diversity in the European Steel Industry

Skills, Qualifications and Training in the British Steel Industry: A Case Study

Introduction

The British case study focused on a steel finishing plant in South Wales, UK, part of Corus plc. This plant is located in the Corus Packaging Plus division, which is responsible for producing light gauge coated steel for packaging and other applications. The plant dates from the early 1950s and, more recently, has benefited from investment and relocation of equipment and assembly lines from elsewhere. In 2001, production output was set to increase, and while the size of the workforce might have declined over the years, it now appears to be relatively stable, with a prospect of some modest expansion. In 1998, the workforce was reorganised on a team basis, and there has been a focused attempt to upgrade the skill profile of the workforce, with the introduction of multi-skilling.

The material and analysis presented in this case study report should be viewed in the wider context of the restructuring of the world (including European) steel industry. The European (and world) steel industry has undergone significant adjustment over the last two decades. The changes are, in part at least, due to the deregulation and privatisation of this industry, and coincided with much cross-border merger activity. One result is an increasing concentration of ownership and the refocusing of production within international markets. There have also been other catalysts for change; for example a substantial degree of technological innovation, and an increasing emphasis on downstream activities and customisation. The corollary of these developments is that there has been pressure on companies to create the conditions for further automation and mechanisation of production (not least through significant technological development), as well as to centralise production into fewer facilities. One result of these activities has been a major reduction of steelwork employment, particularly in the advanced industrial countries, but also in the former Soviet Union and Eastern Europe, too. Along-side these shifts, new recruitment strategies and skills and training needs are likely to emerge. It is against this transformative context that the skill needs of the European steel workforce is set. A more in-depth discussion of the above issues is located in Work Package 1 Reports 1, 2, 3 and 4.

The Report is organised in five sections. Section One comprises an account of the company, followed by a more detailed presentation of the plant that was studied. In Section Two an overview of the workforce is provided including a schematic presentation of the managerial and work organisation. Section Three examines the skills, qualifications and occupational profile of the plant. In Section Four the training profile is reviewed. In Section Five future skills needs are identified.

Section One: British Steel Co.

The Corus Packaging Plus plant at Trostre, south-west Wales is wholly owned by Corus plc, an Anglo-Dutch multinational steel producer. For many years, it was one of two coating plants in the UK. However, following considerable reorganisation and upheaval in the company between 2000 and 2002, the plant has now emerged as the companies principal producer of light gauged coated steel. Administratively, the plant is part of a division that has its head office in the Netherlands. The plant is located on a self-contained site, connected to the main steel producing plant in Port Talbot, also in south-west Wales, via the national railway system.

The Company

The main steel producer in the UK is Corus plc. This company is the outcome of a merger on 6 October 1999, between the then British Steel plc and Koninklijke Hoogovens, a Dutch steel producer. In order to locate this merger and appreciate its significance it is necessary to review the history of the British partner to the merger.

The British Steel Corporation (BSC) was a publicly owned company, established in 1967 as a 'nationalised' corporation. It was formed out of the acquisition of fourteen of the largest steel companies in the UK. At the time the company owned five integrated steel works: Scunthorpe and Teeside in north-east England, Port Talbot and Llanwern in south Wales and Ravenscraig in Scotland. The company inherited a modernisation programme and initiated a programme to expand and modernise the integrated works, as well as investing in stainless steel production, modern mills and coating facilities at the Shotton plant in north Wales (Beauman, 1998).

While the company retained nearly 60 per cent of the UK market share in the early 1970s it only operated financially at the break-even point. In the mid-to-late 1970s the company faced a massive decline in the world consumption of steel, a decline in UK consumption and rising input costs. The company's UK market share declined to 50.1% in 1975/76 and imports rose from 5.6% in 1971/72 to 19.5% in 1975/76. In March 1977, the company had 208,000 employees and a steel making capacity of 25 million tonnes (Beauman, 1998: 40 – 41).

As a result of these developments, the BSC was encouraged by the then Labour Government to begin a programme of capacity and cost reduction. In 1979, with the election of a Conservative government, a tougher version of this strategy was developed. Subsequently, against a backdrop of industrial relations unrest and a thirteen week strike in opposition to the proposals, core elements of the policy were implemented. In the first nine months of 1980, the workforce was reduced from 175,000 to 130,000. As part of the settlements following the strike changes to work organisation were implemented, involving work practices, flexible work arrangements and the increased use of contractors. These changes continued and during the 1980s BSC started to produce high quality products and improve its delivery times, reliability and customer targeting (Beauman, 1998: 41- 43).

The culmination of all previous developments was the privatisation of BSC in 1988. The new company continued to reorganise its workforce, with, for example, a commitment in 1993 to introduce team working throughout all plants (Bacon and Blyton, 2000). However, the combined effects of another European steel crisis, between 1990 and 1992, and the newly privatised company's seeming inability to fully establish itself internationally, meant that it began to struggle to retain its position both in the UK and in Europe. It was relatively unsuccessful with mergers and acquisitions in Europe, despite some success in Sweden and the development of an investment presence in the US and, to a lesser extent, in the Asian region. In 1999, however, the company appeared to reverse this trend with the merger with Koninklijke Hoogovens.

The headquarters of the new company, Corus plc, was located in London. The company comprised 21 Business Units, located world-wide. Its shares are listed in London, New York and

Amsterdam. The new company is global, and in 2000 was the third largest steel producer in Europe, and seventh in the world, according to the International Iron and Steel Institute (IISI).

The company supplies a range of markets: aerospace; agriculture; automotive; construction; consumer products; energy and power generation; engineering; heating, ventilation and air conditioning, packaging, rail and shipbuilding. The distribution was as follows in 2000:

Table 1: Markets supplied by Corus

Market	Estimated share of turnover (%)
Construction	32
Automotive	18
Mechanical Engineering	13
Metal Goods	12
Packaging	10
Electrical Engineering	4
Other Transport	3
Other Industries	8

Source: Corus plc, *Annual Report 2000*, p. 3

Following the merger, the company reviewed its corporate strategy, part of which involved the review of the UK operations, especially in relation to carbon steel production.

The company had 64,900 employees at the end of 2000, distributed as follows:

Table 2: Employees by location

Location	Total per location (000's at end December 2000)
UK	32,800
The Netherlands	12,900
Germany	6,800
Sweden	3,650
USA	2,100
France	1,800
Belgium	1,600
Other Europe	1,500
Canada	1,250
Other countries	500
Total	64,900

Source: Corus plc, *Annual Report 2000*, p. 5

Table 3: Employees by product type

Product Type	Employees (% at end December 2000)
Carbon steel	81
Stainless steel	10
Aluminium	9

Source: Corus plc, *Annual Report 2000*, p. 5

Despite the review, the British wing of the new company continued to face difficulties securing its position in the UK as an economically viable steel producer, especially in the context of a disadvantageous exchange rate between Pound Sterling and the Euro. In addition, the management of the British partnership remained committed to continued cost reductions (Beauman, 1998: 48). Corus' management sought to secure both synergies and integration between the UK production capacity and that of the Netherlands. Thus, from the beginning of its establishment, Corus plc announced a wide range of closures and staff reductions, as part of a broad reconfiguration of the company. The announcements for the UK were as follows:

<i>December 1999:</i>	<ul style="list-style-type: none"> Shelton section mill - 220 jobs; closure by June 2000
<i>May 2000:</i>	<ul style="list-style-type: none"> Workington - reduction in operating shifts, 170 jobs out of 400
<i>June 2000:</i>	<ul style="list-style-type: none"> Corus Engineering Steels - 1200 jobs; closure of Tinsley Park Works by December 2000, sale of metal recycling business, reduction in shift staffing levels at Stocksbridge, accelerating of labour reductions through teamworking
<i>June 2000:</i>	<ul style="list-style-type: none"> Research and Development - 230 jobs at Teesside and Port Talbot, as a result of the intention to establish a new Technology Centre, probably at Sheffield
<i>July 2000:</i>	<ul style="list-style-type: none"> Corus Construction and Industrial Business Unit -1200 jobs at Teesside, Scunthorpe, and Dalzell
<i>July 2000:</i>	<ul style="list-style-type: none"> Corus Strip Products and related businesses in South Wales - 1300 jobs during 2000-2001 (450/ 3000 Llanwern; 400/3500 Port Talbot)
<i>October 2000:</i>	<ul style="list-style-type: none"> Corus Strip Products - 220 jobs, including 65 at Teesside, 100 at Port Talbot, and 45 at Shotton
<i>February 2001:</i>	<ul style="list-style-type: none"> Major strategic review - 6000 job losses, half from flat products production and half from organisational and productivity changes. Closure to result in the following job losses: 1340 at Llanwern; 780 at Ebbw Vale (closure); 320 at Shotton; 280 at Teesside; 130 at Bryngwyn (closure); 200 at Strip products central functions

Source: Sadler, 2001, p. 41

The expectation was that the number of UK employees would be reduced to 22,000 by 2003 (Annual Report, 2001: 5). The result was that of a company facing considerable uncertainty, with implications for the creation of a workforce that could operate within this newly configured company.

The Plant

The Trostre Works is part of the Corus Packaging Plus portfolio. Until the merger that created Corus plc, the plant operated with its own headquarters staff. However, following the merger and with managerial reorganisation, Corus Packaging Plus, of which the plant is part, now has its headquarters in the Netherlands. This development resulted in a managerial down-grading of the plant. There are however, no signs that this change had made any difference to operations in the plant. Rather, there appears to be considerable investment into the plant, estimated to be a third of all investment being made by the Corus operations in the UK (Interviews, 2001). Thus, there was a view that the plant has a vibrant and long-term future.

The plant is a little over fifty years old. Building began in 1947 and production commenced in 1951. This plant was part of an expansion of steel making capacity in the UK. While other plants were located in the area, mainly hand mills, employing an estimated 12,000 workers, the Trostre Works was part of a new wave of steel production in the UK. The decision was taken to build a dedicated plant and develop it as a greenfield site, reputedly the result of successful political campaigning by the local MP. One consequence was that neighbouring plants closed, such as the Felindre plant. Part of these workforces moved to the Trostre Works. The importance of this aspect of the plants history is that in 2001, with the closure of another Corus Packaging Plus plant in Ebbw Vale, part of this 'redundant' workforce and one of the production lines moved from Ebbw Vale to Trostre.

The Trostre site is located in a semi-rural area a few miles from the main motorway. It is reached from a dedicated road off a roundabout signed to Corus. On the right hand side before the security gates there is a single storey brick building, which is the sports centre, and then a two storey brick building which housed the main administration and reception. Inside the perimeter fence, the plant comprises mainly brick buildings, with the main works reputedly the largest brick building in Europe. It was surrounded by a number of large housing estates where about 60 per cent of the steelworkers live. Adjacent to the plant is a retail complex, with Tesco, McDonalds, Blockbuster and other stores.

The plant produces high quality, light gauge steels for the packaging industry and together with the second plant produces 800,000 tons of the total 1.6 million tons produced by Corus for the packaging industry (Trostre Visitors Guide 2002: 1). The hot rolled coil material comes in by rail from the nearby integrated steel works. Until 2001, this material was also supplied from a second major integrated plant, based at Llanwern in South East Wales. The plant's finished products include Electrolytic Tin Coated steel, Electro Coated Chromium Steel (ECCS), and Ferrolite Coated steel. These products were transported out of the plant as either coils or flat sheets.

In 2001, with the addition of the production line moved from Ebbw Vale there were plans to increase the output from 500,000 mt to 750,00 mt. The capacity of the plant was set to increase, in part because a 'new' tinning line had been commissioned, and an Electrolytic Tin Line (ETL) from Ebbw Vale was move to and rebuilt at the site. This addition not only resulted in an increased capacity at the plant, in terms of output, but also involved an increase in the staff complement of over 100 additional staff, who moved from Ebbw Vale.

The plant has the capacity to produce a variety of products, which increasingly meet the 'needs of customers' (Interview, 2001). Indeed, it is becoming increasingly possible to tailor output to customer requirements, in automobiles, domestic appliances and the like. It produces sheet of varying widths and thickness', with a variety of finishes. These products included laminated steel, tin and chromium coated steel, all different gauges, and thickness' (Interview, 2001 and observation).

The plant supplies 40 per cent of its output to the UK market, with the rest scheduled for export. When the processing is finished it is then transported directly to the customer, almost immediately, since the storage capacity in the plant is not vast. Most of the finished products, coil and cut sheet, are taken out by road transport, bound in plastic covers to protect them. The goods for export are taken by lorry, usually to Dover, where they are shipped to the continent. Some goods are also shipped from Felixstowe; a small amount is also shipped from the docks at Swansea, Cardiff and Newport.

Over the last few years the appearance and housekeeping at the plant has improved, with landscaped areas around the buildings of a neat and tidy appearance. A tree and shrub barrier has been planted alongside a slip road at the southern end of the plant. In general the buildings both inside and outside are clean, tidy and well organised. This emphasis on the environment also extends to recycling, which is reflected in the increased use of by-products. At one opening into the side of the main production building, for example, a bluish powder drops to the ground from a funnel located in the building ceiling. This powder is a by-product from the pickling process and is collected and sent for reprocessing as fertiliser for garden centres.

The production end of the plant is very compact and organised very efficiently in a huge brick building. Conceptually, the building is divided in half along its length and the production processes proceed from the left side of the southern entrance, up to the northern end and then back down the right side. The only process out of sequence in this layout is the Double Reduction mill, which was a late addition to the plant.

Hot Rolled Coil: Incoming hot rolled coil is stored at the southern end of the main brick building in a designated area outside the building. Most of this coil is delivered on a daily basis from Port Talbot, some twenty miles to the east via a branch railway line running down the western side of the plant, from the mainline tracks a short distance to the north. Some coil is transported from the Netherlands to Trostre. Once at the plant, the coil is transported on adapted railway trucks and then stored inside the building for preparation for the pickling line. However, because of the restricted space some coils are stored outside the plant in bays at the southern end. Inside the plant the coil is stored in batches on the basis of the schedules of work planned in the plant.

The scheduling of the hot rolled coils coming into the plant is done on a weekly timeline to meet the forthcoming needs of the plant. The Scheduling Staff inform the Port Talbot works of these requirements a week ahead and production in this integrated works can be adjusted accordingly. The required coils are then prepared at Port Talbot according to pre-agreed specifications and dispatched.

Unloading: The wagons that deliver the hot rolled coil are parked just inside the main building, either in the process of unloading or awaiting return to Port Talbot. These wagons contain

dedicated cradles for the coils, both for ease of transport and also to protect the coils. The storage and unloading area in the main building was probably about 200 yards square. Huge overhead cranes move the coils from the wagon carriages.

Before arrival at the Trostre Works, codes are placed on the coils to indicate where and when they were produced, to what specification and any special treatment they might require, in the pickling process, for example. This process of coded markings continues throughout the production process within the Trostre plant, thus enabling an audit to track the production and to ensure that faults and problems could be accurately traced. These audited records are kept for six months.

Preparation: The coils in turn are placed on their end in cradles and they were then prepared for the pickling process. This involved some manual cutting of the edges, but most of the cutting preparation takes place in a large press and a cutting machine known as 'Big Bertha'. It is unclear how many people work in the area, although the team sizes in the plant are between five and fifteen. On the line in the lead up to the pickling area, coils are cut and joined in readiness for pickling. This process involves operators coming out and checking the sequencing of the coils and the tension on the lines. At one point the coil is unwound in front of a control machine, with a loop of coil rising about 15 feet into the air, then reversed so that the coil is flat and then set at the right tension for going through the pickling process.

Pickling: The pickling process comprises the first stage in the conversion from hot rolled coil to tinplate or chromium plated steel. This stage takes place in a huge structure that effectively was the shape of a reverse 'Z'. These processes clean the oxides off the coil surface with an acid dip. The coil is threaded via a series of rollers vertically to the top of the structure about 30 feet high. It then runs along the top of the 'Z', is threaded back down at a diagonal on the 'Z' and then ran along the bottom line of the "z" above the acid vats for the pickling. As the sheet proceeds, treatments are applied with the result that the coil is then cleaned, softened and prepared for further work. The 'Z' structure is introduced so that the surfaces are always clear of each other. This process prevents scratching and damage of the surfaces. Overall, the line is over 226 metres long.

Cold Rolling: The pickling process is followed by cold rolling in the Five Stand Mill where the coil is rolled to the right gauge for ensuing processes. This is a conventional casting line with the stands organised to create the gauge width. In the case of tinplate preparation this width was from 2.1 mm down to 0.2 mm.

Annealing: After the mill, coils are moved onto one of the three annealing lines: the Continuous Annealing Line (CAL), the Continuous Annealing Process Line (CAPL) and Batch Annealing (BA). The purpose of annealing is to soften the steel, which has become very hard and brittle after going through the pickling and cold rolling processes. The first part of the annealing process involves cleaning and drying. The CAL and CAPL lines are huge pieces of equipment, which clean, dry and anneal in a continuous process. The coils are welded together and then cleaned. This process takes place in a huge tower, 50/60 feet high and an equivalent distance into the ground. The coil runs vertically and thus appears to hang from the ceiling down into the ground. When the steel is cleaned and dried it runs through the furnaces and undergoes heating in an oxygen free HNX atmosphere. The CAPL line is the most modern, having been commissioned in 1988, and is capable of handling 3000 metres of strip. The furnaces however, had been installed in the 1950s.

The control room is a raised structure in the centre of the work area. It comprises a bank of consoles with an operator's chair. These consoles either display print-outs of the work process, indicating the dimensions and accuracy of lines or camera pictures of different work areas, inside furnaces and related machines as well as the work areas around the lines. The result is that the work process and workforce are very visible to the control operator.

Beyond the control room, continuing down the left side of the building the Batch annealing area is located adjacent to the tower frame. Four coils are placed on top of each other. A cover is put over the coils and then the furnace is placed over the cover. Some coils go through both continuous annealing and batch annealing, but some only go through one or the other depending on the final destination of the steel.

Secondary Rolling: The next stage comprises the Double Reduction Mill, the Temper and Coil Preparation.

In the Temper Mill, steel coils are hardened and given some of their finish before going on to one of the coating lines. The first stand hardens the strip and the second stand provided the surface finish – bright, stone or matt finish. Every three weeks the Temper Mill is shut down and cleaned. Alongside this area, there was a bare functional room with a central desk where the shift meetings of the team leaders took place, where problems are discussed, faults inspected, shift transfers considered, and work planned.

The Double Reduction Mill comprises three sets of rolls, for the reduction of steel strip, as the name implies. This stage is critical for the production of thin dimension cans. The location of this unit is slightly out of sequence, at the northern end of the building. Reputedly the reason for this location is that the main layout of the plant had already been agreed and the plant was in operation before it was decided to install this unit.

Final coil preparation involved trimming operations, accompanied by inspection.

Coating Lines: The coating lines are located down the right hand side and back to the southern end of the building: Electro-Coated Chromium Steel ECCS where chromium coating took place, Electrolytic Tinning Lines - ETL 5, built in 1991, the premier, high technology line where the steel coils were tin coated and ETL 6, transferred from Ebbw Vale. Also in this area, the Ferrolite Line is located, to coat the steel in a variety of laminate finishes including the white surface used in baby food tins.

Post Coatings: Following the coating processes, the coil is inspected, involving monitoring equipment. Most of the finished product goes out of the plant as coil. However, some is cut into sheets for customers. These sheets are cut to length on the Sheer Line. The final stage involves packaging, storage and transportation.

Manufacturing Support: A variety of support activities took place in the plant.

Opposite the control room at the end of the continuous annealing line, more or less in the centre of the building, machine parts are maintained and repaired. The machining area is located towards

the northern end of the building, mid-way between the two processing areas. This work area services the lines and is where the majority of the fitters and machinists employed at the plant work.

As with all the main work areas in the plant, large cranes operate overhead moving the coils back and forth in readiness for each process. Workers are visible in control rooms, which are located in the middle of the work areas, and others move back and forth from lines.

At the end of each process, there is provision for quality inspection. As the coil goes through the processes there are checks, involving taking sample ends and testing for strength purity etc., accompanied by manual inspection for scratches and imperfections and so on.

Section Two: The Workforce

Until recently the plant workforce comprised around eight hundred and fifty employees. However, this number was increased in 2001, to around nine hundred, by transfers from the Ebbw Vale plant. (Fifty employees had already transferred and another thirty were scheduled to transfer next July/August. (Manager, 2001). At this time, approximately sixty percent of employees lived in the adjacent area, many in the large housing estates surrounding the plant. The other forty per cent reside in the city of Swansea, about ten miles away. Those transferring from the Ebbw Vale plant relocated their homes and families to this area, a company condition of the transfer, despite the practical possibility of commuting.

The majority of the workforce was between forty and fifty years of age, in 2001. This age profile is the result of the restructuring and redundancies of recent years. Relatively few workers were over the age of fifty and recruitment of younger people into the industry has been limited (Interviews, 2001). In the view of many, this limited intake was likely to create difficulties for the plant in the future:

...the recruitment has been limited within the steel industry for quite some time so it's been a small take up of graduates and apprentices and it is a problem that we will have to address in the not too distant future because everyone is moving forward together and we are going to have a lot of people about to leave at the same time as well. (Manager, 2001)

Thus, recruitment at this plant had been minimal for a number of years:

...recruitment started to decline around 1980...we have minimum numbers for recruitment ... (Manager, 2001)

As a result, there had been a limited intake of apprentices for a number of years, and even then the number recruited had been determined by external factors.

...for apprentices it is six, the reason being is that that is the number that is needed to support the local college ...what is quite important from an apprenticeship point of view is that if we stop recruiting apprentices we are likely to lose the college courses that support the apprenticeship programme and then if we wanted to start recruiting again the courses

wouldn't be there...These six apprenticeships tend to be four mechanical, two electrical...those are the minimum numbers for the college.....the administration and technical apprenticeships tend to be on a needs must basis... this year we haven't recruited for these...(Manager, 2001)

A similar pattern operated with graduate trainees:

Graduates, again the numbers we tend to recruit...between four and six for this site...The graduates we would normally recruit would be mainly engineering, mechanical and electrical and then also some metallurgists. And then on a needs basis we will recruit for Finance, HR... (Manager, 2001)

In the view of management there were difficulties finding staff with the skills required by the plant. As one respondent noted:

It's very difficult in the selection process to find people with the skills we are looking for...we struggle to recruit...it depends on the discipline. In terms of whether education prepares people for working life...I have seen an improvement but we are not there yet...I think the problem is... the problem that education faces is that they are trying to pander to business needs but from my point of view they are diluting the depth of knowledge that they are teaching. I am encouraged to see more communication skills type activities in the curriculum for graduates but sometimes it is at the expense of the course. I have seen an improvement in it. But I think the most effective way that the education system gets that is through involving industry in programmes that ...for example we are involved in quite a lot of universities delivering team-working activities, communication skills ...industrial societies ..and I think that's more effective because students are actually listening to what a business wants rather than a lecturer telling them what they think a business wants...(Manager, 2001)

One implication of these problems was that it was possible that more women would eventually be recruited. However, in 2001, there were very few (less than five percent) women employees at the plant. Women graduates worked in Human Resources, technical and quality fields and finance and administration. A number of women had gone through the modern apprenticeship system into commercial, administration and finance and a few who had completed manufacturing/engineering apprenticeships had moved into production (Interview, 2001). One female graduate was a technical specialist and a female apprentice worked on the coating line (Interview, 2001). Some concern was expressed about these developments:

We've got a few [women] now actuallyone apprentice in fact.... I've got a young girl who's come to me a couple of weeks ago...but they present difficulties, nothing to do with being girls and not being supposed to lift heavy weights or anything, but to do with the chrome and the chemicals and so on.... allegedly damaging to their reproductive organs... (Manager, 2001)

However, there was the beginning of some recognition that more and more women were likely to be recruited into the industry. As one senior manager observed:

...if you ask for the proportion of women working in the industry aged under thirty you will find a much different percentage.....already...The reason is that one in two of our graduate recruits is a woman.....if they are qualified and we want those qualifications there is no reason not to recruit them.....there are more women graduates in the areas of engineering and so on now.....so there are more women at the higher end, the higher skill end of the industry now...(Senior Manager, 2001)

It was anticipated that these changes would also feed through into the production areas, partly because the work has changed. As noted:

...once upon a time women were ruled out because of the physical effort of the work ...that is no longer relevant....except for some small areas of the works.....generally the old reasons are not there....in the future....lets put it this way....if there are not more women around in a few years time someone will say that we are discriminating because there is no reason not...(Manager, 2001)

Very few workers from ethnic minority groups were employed at the plant, partly explained by some as a reflection of the area, from which staff were recruited. As noted:

..the steel works basically reflects the communityand not being too disparaging there are few ethnic minorities in [the] area.. but we do have a very small number ...and again a number of the graduates we have brought in come from ethnic minorities...the majority of ethnic minorities tend to be from the graduate recruitment... (Manager, 2001)

Thus, the workforce was locally based, largely male, with few ethnic minorities. However, some indication of change was becoming apparent, with the ageing of the workforce and the beginnings of female recruitment. In view of the relatively confident future that seemed likely for the plant, this was a workforce that was well placed to benefit from up-grading and focused training.

The Management Hierarchy

The organisational structure at the Works was relatively flat, with the broad picture as follows:

GRADES	POSITION	EXAMPLES
A* B* C*	Directors Works Manager Senior Managers	
D-E	Department Managers	Manufacturing Engineering Technical Finance HRM
F-J	Staff	Manufacturing Engineering Technical Administration Secretarial
F.E.P.	Future Employment Package	Team leaders Team Members Craftsmen Trainees

Source: Interview, 2001. *These grades are outside of the recognition areas of trade unions

This structure comprises six principal levels, and rests on a team-based form of organisation. A more specific way of presenting this structure is in terms of the broad areas of the managerial hierarchy for manufacturing:

		WORKS	MANAGER		
AREA PICKLING	AREA 5 STAND MILL	AREA ANNEALING CAL/CAPL	AREA SECONDARY ROLLING	COATINGS	POST COATINGS
Manufacturing Manager	Manufacturing Manager	Manufacturing Manager	Manufacturing Manager	Manufacturing Manager	Manufacturing Manager
PIT Performance Improvement Team	PIT Performance Improvement Team	PIT Performance Improvement Team	PIT Performance Improvement Team	PIT Performance Improvement Team	PIT Performance Improvement Team
Manufacturing Teams incl. Team Leaders and Team members	Manufacturing Teams incl. Team Leaders and Team members	Manufacturing Teams incl. Team Leaders and Team members	Manufacturing Teams incl. Team Leaders and Team members	Manufacturing Teams incl. Team Leaders and Team members	Manufacturing Teams incl. Team Leaders and Team members

Source: Interviews, 2001

Management was organised into six manufacturing areas, each covering a major production area and each comprising a business group. Each area had a manufacturing Manager, a Performance Improvement Team (PIT) and Manufacturing Teams on shifts. The PIT comprised electrical engineers, mechanical engineers and quality control personnel, to provide technical and personnel support.

Work Organisation

The workforce was organised on the basis of teams, with appointed team leaders. This form of organisation replaced a more conventional distinction in the past between skilled, semi-skilled and unskilled workers. While for the British company as a whole, team working was first introduced in 1993, this plant was reorganised on a team basis in 1997/98 (Interviews 2001, see also Bacon and Blyton 2000).

The process of reorganisation and the subsequent arrangements were varied in the different plants that made up the company, especially in relation to the appointment pool for team leaders. As stated for Trostre:

...the company was doing team work right across the board but each business, each works, was allowed to do its own variation on a theme. ...integrated works decided to put the team leaders into (that) population, whereas we felt that we would get better harmonisation if the team leader and the team member were in the same population. (Manager, 2001)

In effect, multi- skilled teams were created to operate sections of the plant and carry out routine maintenance and testing thus breaking down some of the divisions between production operatives and maintenance workers and reducing delays. The result was a set of teams as follows:

Manufacturing Team	
Manufacturing Team (8 members) Team leader and members	These teams work shifts, running from 8.00 am – 4.00 pm; 4.00 pm – 12 midnight; 12 midnight – 8.00 am. There are five separate shift groups
Specialist Teams	
Engineering team (12 members) 1 co-ordinator, 1 TME- technical expert, 5 mechanical, 5 electrical.	This team fixes things that are broken, modifies plant, resolves engineering issues
Technical Team (4 members):	These look after the specifications of the product and advise on things like defects and the effect of these on products They will be science trained - chemistry, metallurgy, physics Not usually graduates but HNC.
PP & C – Production and Planning Team (3 members):	These schedule the works and look after the through- put of material through the plant they have external links to the commercial department, transport, supplies.

Source: Manager, 2001

This restructuring resulted in an erosion of middle management occupations, such as shift managers, section managers and supervisors who were absorbed into the team structure, usually as team leaders.

One further team was the Performance Improvement Team (PIT). This was a day team that comprised seven members (two electrical engineers, two mechanical engineers, a process specialist and a technical specialist and the manufacturing support facilitator). The difference between the two specialists was that the process specialist considered the operation of the plant in terms of delayed performance and speed of working while the technical specialist was responsible for the strip and the quality of the strip. A further innovation with the establishment of the PIT, was the development of the Manufacturing Support Facilitator (MSF). The number of specialists in the PIT depended on the size and complexity of the area. The 'post coating' area employed around seventy people while 'coatings' had one hundred and thirty six.

One facilitator described the MSF role in the following terms:

...It's actually a new role been created for a team worker....it's unique I guess to Trostre and Ebbw Vale and they are not going to do it anywhere else. To give it its common title its 'peoples person' The way I look at the role, you've got an engineer works the line, you've got a technical person who looks at the quality ands the process but you've still got to manage the people. So the engineer oils the line and I oil the people...(2001)

The workforce at the plant was organised on a team basis. It was a form of organisation that was relatively recent in origin and was still in the process of being developed.

Section Three: Skills, Qualifications and Occupational Profile

The reorganisation of the workforce had taken place over the previous five years, and thus was still in a state of transition. For many of the workforce, especially those in their thirties and forties, these changes had resulted in the acquisition of different skills. As workers in the plant, many for a number of years, they had received training and achieved further skills and qualifications. The workforce was therefore very mixed and the training strategies for the present and the future were complicated by this fact.

In the period 1960 – 1985, production workers could enter with few or no qualifications from school and would be trained on the job. The more ambitious would take a City and Guilds certificate in Iron and Steel Production Technology. This might be done in the evening, or through day release. However, in general many steelworkers only had vocational qualifications.

Recruitment specifications to the plant have since changed. There are now two categories of entrance into Corus plc employment in the UK. First, it had become the case that all team members, including craft-workers and maintenance workers, are required to have a modern apprenticeship and to have gained a National Vocational Qualification (NVQ) level 3 (unless they finished with a Foundation modern apprenticeship which carries a level 2 NVQ). To gain admission to a modern apprenticeship, it is necessary to have 3 or 4 General Certificate of Education at grade C or above and these must include Mathematics and English. Second, those coming into professional, technological, managerial staff positions are required to have at least a second-class University degree.

However, the new recruitment specifications with regard to qualifications are relatively new. The qualification profile of the Corus production workforce thus remains rather undeveloped, a situation that reflects the age profile of the workforce described earlier. Indeed, in this respect, the past weighed heavily on the skill profile at the Trostre Works, as indicated by qualifications. The shift to team working highlighted some of these dilemmas. One manager stated:

We are in a transitional process and when we went into team working it wasn't as if we could sort of rid the plant of everybody and recruit all new ones. We are moving towards the team member being a multi-skilled individual and generally with a mechanical skill qualification. At the bottom, the trainees tend to come in, take a mechanical qualification, ONC or HNC, and become team members. So the level of skill in the team will always be increasing. But having to go into team working in 1998 and having to use the employees currently with us, we still have some employees, with no disrespect, who are employed as team members but are basically fork-lift truck drivers, crane drivers. But they are gradually moving out and being replaced by higher qualified people. (Manager, 2001)

Managers were aware of the uncertainty about the meaning of skills. One noted:

For the team members it depends what you mean by skill, is skill that they have a qualification, or is skilled that they can do more than one task, and are trained to do so. Because if it's that they can do more than one task and are trained to do so then all the team members are skilled. (Interview, 2001)

There was a view among some senior managers that achieving a skilled workforce was likely to be limited. As noted:

Yes....again the objective for the team member and team leader is to be as self sufficient as possible so that they have all had some mechanical skill training and they have all had some quality training, and the teams have process training and manual handling training (crane and forklift). But not all members have all training. You will find that within a team you will have say a team of ten and two will have had the mechanical, two will have had the quality and so on, to create a team that is multi-skilled and can have some flexibility. (Manager, 2001)

What was being created are multi-skilled teams rather than multi-skilled individuals. This process was slow:

...the rule is for any one skill there will be at least two people who can do that skill and there will always be cover for at least one person. And each person will be able to do at least two skills and as time goes on maybe they will pick up a third skill.... But the way we are going at the moment we are not trying to dilute those skills too much. One of the fears we went through with team working was that everyone was trying to do everything, which was kind of defeating the object of moving towards multi-skilled people. So they have tended to pick up at least two areas each...maybe a third, but now we are looking to focus on developing those particular areas. We wouldn't want to go much further than that because if you are not in a position where you are using those skills on a regular basis then it's a waste of time and effort and cost in providing them if they are not going to be used. So again the objective is to provide training and skills which are going to be used on a regular basis (Manager, 2001).

It was claimed that a broader range of skills was required of the workforce and that the company division in which the plant was located was moving towards this goal. One section manager stated:

...the division ...is starting to realise that the soft side of performance is just as important as anything else. And there is a diagram which is used, probably too widely, which shows the hard side and the soft side. We are very good at the hard side, (which is) all about targets and objectives and task, but we are not very good at this side (soft) which is (about) values, behaviours etc. That is why we can get good outputs from the plant generally speaking and the plant has had some fantastically good outputs in recent years but we are not very good at things like getting a good safety culture and really what we have twigged on to is the fact that really we can drive our hard performance by improving the way people behave. And what values they have. So, a value could be.... one of the values that we actually have is that we think that *continuous improvement* is important and that *personal development* is important. So that's where as a division we are coming from and the works manager here ...is extremely keen on this side of things (soft) and always has been. Quite rightly and what you are finding is that different parts of the plant are taking on different aspects of the things that we have been talking about. (Senior Company Manager, 2001)

Other commentators were harsher in their judgement of the success of recognising generic skills, although there was a widespread recognition that if these skills were not recognised then the future in the steel industry is likely to be bleak. As a section manager noted:

I don't think they would perceive them as very important...we are starting to perceive them as important but I think we are very, very poor at it...so if you take personal development as a phrase we are starting to get into it now but we are very backward in that. So we now realise that people don't just need the operating skills and we now realise that personal development isn't about giving them a tractor driving license or a crane driving license it is actually about getting people involved and getting people to believe that getting involved is interesting and important to them in terms of security....that communication skills and how we organise ourselves is important and also trying to give them why it is important because it is so competitive now that if we don't we are really up against it. (Section Manager, 2001)

One practical reason for placing an emphasis on generic skills, such as problem solving and the like was to provide the means to deal with shift working. As noted:

...Yes. Simply because there is a drive to set the onus on solving problems away from the people who work on days to the people who work on shifts. So the people who work on days can work on development and improvement rather than on fire fighting and problem solving which is how it has worked in the past, but it is changing now... (Section Manager, 2001)

The changing skills profile was also linked to qualifications, as one of the proxies for skill recognition and acknowledgement. In an overview of the workforce, one training manager stated:

For team members:

as a *team member* you actually require very little .In fact you need none. You don't actually require anything. All you need is common sense ... In actual fact to do the jobs that they do you do not need much more than being able to read and write. Personally I would like to see them having a mechanical engineering qualification, because a lot of what we face is really to do with plant effectiveness as much as anything else and that's always been a problem. From a personal point of view they also now need to have continuous improvement skillsso they understand problem solving steps they understand tools and techniques for problem solvingthose things can be taught.... (Manager, 2001)

For team leaders:

For *Team Leaders*...again I think mechanical skills are very important but obviously more importantly they need, to some extent they need formal qualifications in supervisory management...From a quality aspect, we have looked previously at whether QA type courses are of any relevance and usually they are not...the training that we try and give people and the development that we try and give them is usually not suited to the kinds of course that we get outside..... our quality training has to be very specific...(Manager, 2001)

The Performance Improvement Group:

The *PIT group*...we would try and aim here for ...take the engineers ...the senior engineers we would like to be degree qualified at least. In each discipline...the junior engineers who sit alongside them would need to be HNC level, ideally HND. (Manager, 2001)

The specialists:

Process and technical specialists...the same thing here, we are looking for degree qualified people...we don't tend to have problems so far with the newer universities, they tend to be okay in terms of providing people although realistically we know some of those people are not going to progress to manufacturing manager level these days...[why?]?...if you take some of the degree courses, you can get a degree in mechanical engineering from Imperial College [old university] and that's one thing. If you get it from the university up in Caerphilly [new] that's another one... (Manager, 2001)

Manufacturing Support Facilitator:

MSF... a MSF really requires some sort of Institute of Personnel training...IPP... (Manger, 2001)

Manufacturing manager:

Manufacturing Manager... certainly needs to be degree qualified and needs formal training in aspects of IR [industrial relations] and HR [human resource] management.....and needs training in coaching skills. So does the MSF and all the others like PIT...they should all have coaching skills training. Ultimately that should go into the teams as well but not yet...I would think we would be at that stage in about eighteen months... (Manager, 2001)

There was recognition among managerial staff that the modern apprenticeship and degree qualifications did not provide a sufficient base to become a steelworker. In an explicit acknowledgement that recent recruits, and specifically graduates, did not have the broad range of generic skills that were required, a section manager stated:

I think what actually happens is that the process... is that we turn people from your average person into something that actually suits the culture of Trostre works. So in other words they actually start to fit the norm of somebody who works in this steel works. We don't actually do anything in terms of the graduates to say this is...we do have a graduate training scheme but the induction is about six months long and they go through every area in the plant, they do go to some course in Ashorne [the national training college], but I don't think they are actually directed in terms of their people development skills or coaching skills. They never used to be put it that way. What I'm saying is that should be one of the most important things...and what I'm saying is that you can then kick it out of people when you get them here in the works. If you do your Ashorne Hill management course in personal development training so you understand what the theory is and then

you come here and you go into the office there and he's bollocking somebody you've lost it straight away. And its old steel works culture..... We are improving... (Section Manager, 2001).

At a more general level, there was unease amongst the workforce about the future of steel employment and the way it may impact on futures. This unease was expressed in the following way:

...one thing I am slightly anxious about sometimes is that qualifications which are not too relevant are being regarded as more important than, and more valuable than training, which we are not doing enough to link into qualifications....I think that the importance of qualifications is that you do get an external quality assurance and an external assessment,so that is why I would be in favour of training being linked to qualifications...(Panel Interview, 2001).

This situation, however, was seen as a problem for national training bodies and educational providers. It is beyond the scope of Corus plc to provide such credentials.

The overall situation appeared to be one where there was an increasingly clear recognition of the qualifications and training required for staff, but that this was a make-do approach with the operators and related manual staff. To an important extent, this approach was a feature of a workforce that was in a process of change, as the team form of working became more and more embedded. It was also recognition of the limitations of external training, which by implication placed a reliance on internal training, to develop the skills specifically required.

Section Four: Training

The training provision for the plant workforce was divided between a relatively comprehensive national programme and a more limited 'on the job' form of training at the plant. These arrangements resulted in a training programme that was both comprehensive in its focus but much more uneven in practice. The outcomes were that the relationship between training and skills was rather attenuated and uneven.

Training Organisation

Training Policy and Strategy for the Corus plc group is developed at the central training facility for the company at Ashorne Hill in the West Midlands, where corporate Human Resources is located. Most management training for the company is organised and delivered at Ashorne Hill. In addition, team leaders, especially when the teams were in the process of construction, attended training blocks at the facility. An annual report is compiled each year highlighting the training for the group. These reports identified new developments, the progress of NVQ training, modern apprenticeships, National Training awards, initiatives in Health and Safety training, and the figures for their training investment. Currently the training expenditure for the group runs at an estimated £50 million pounds a year.

About 70 per cent of adult employees in Corus plc receive some training each year, with almost 60 per cent of all training investment spent on non-managerial staff. The training varies in intensity and duration by occupation. Full-time training of various lengths is made available for professional, technical, and managerial staff, and for team workers and leaders. There was less likely to be extended training for administrative and clerical workers, where the main areas of training were in IT use, particularly in working with new software. In practice, this form of training ranged from a few hours to a few days.

A range of providers deliver training. The management training at Ashorne Hill is presented by Corus trainers and by the University of Warwick. Specific aspects of engineering training are conducted by specialist engineers, either at the steel plants or dedicated engineering businesses. Over the last few years, there had been a trend towards more training at Further Education colleges and universities. This development according to informants was because there was a national trend towards this form of delivery and colleges were much more geared up to provide training for industry and in fact were seeking this type of work. One consequence is that there has been a reduction in the scale of training provided directly by Corus plc (compared with an earlier period as British Steel plc).

The company has a policy of funding part-time training, particularly for managerial staff, where appropriate, in areas such as chemistry, business studies and electronics. Further, the company funded and trained in areas such as health and safety, leadership, presentation and communication skills. In these latter cases, employees are given some time off during the working day to attend training sessions on plant.

Corus plc has for some years recruited only through the graduate and modern apprenticeship schemes. The Trostre Works normally recruits six to eight apprentices: four mechanical, two electrical and occasionally the company will recruit an administration apprentice and a technical apprentice. The modern apprenticeship scheme that involve a combination of college training and on-site training. A modern apprentice programme operated between the local Further Education College and the company, with most apprentices drawn from nearby city and local residential areas. The plant also recruits four to six graduates per year. Graduates came from a much larger pool and an informant spoke of two graduate trainees who worked with him, one from Scotland and the other from Ireland.

The broad outline of the apprenticeship training programme is:

<i>Year One:</i>	College.
<i>Year Two:</i>	Three days in college and two days on site.
<i>Year Three:</i>	Four days on site and one day at college
<i>Year Four:</i>	Designated an 'approvers year' when the apprentice works on site, virtually on probation.

Upon completion of the fourth year, when a number of apprentices go on to complete a Higher National Diploma (HND), the company may or may not take them on.

The training of managerial staff was generally off-site and undertaken by corporate trainers or external trainers. Much of this training was done at Ashorne Hill, the management training facility. A variation on these arrangements applied to staff employees, especially those that dealt with supply and purchasing. More recently there had been a practice of sending staff as part of staff training to customers to see where the steel products end up and how they were used, for example in car factories. An informant said this involved relatively few and there was a need for more to go on these trips (Interview 2001). This development clearly was part of a recognition that downstream activity was acquiring a greater importance within the steel plant than had been the case in the past.

Some of the training for plant staff was done on a block basis. One example of this form of training was for mechanical shift specialists and people who were in day maintenance teams and seen as future mechanical shift specialists. It was necessary for those who aspired to become shift specialists to do a number of modules, usually on a block release basis. These mechanical shift specialists had HNC qualifications and were usually ex-apprentices. Typically an apprentice finished a mechanical apprenticeship and, either went to a manufacturing team to work as a manufacturing team member with mechanical skills, or to the mechanical task force, (the day maintenance services people). If an apprentice undertook further training they were then in a position to become a mechanical shift specialist. The block courses usually comprised two-week modules on site, with one or two days at an outside college. Some training could not be done on site because Trostre did not have a training school, only a few limited rooms

Initially, when the team form of organisation was introduced, training for the established workforce became extensive, particularly for team leaders but also for team members. These teaching programmes involved on-site and off-site training and covered team building, problem solving, communications and such like. However, various informants acknowledged that when the team form of working became properly established the training gradually declined, although there were still examples of such training taking place.

Team members and leaders tended not to have block training. Rather there was an arrangement whereby training time was released by a complicated set of calculations from the shift rota system. For each leg of the rota there were 'pay back' days and weeks, which created available blocks of time for training. The management put together time periods when a number of different training events over 1 or 2 day blocks were offered. However, workers had a different view on these arrangements. Workers claimed that the training days they did were not 'pay back days' but left over days in the rota that were used for training. Pay back days, said the workers, were those that a worker owed to the company if they had time off for a personal or family emergency. In these instances, it was claimed, these days may be spent in training (Panel Interviews, 2001).

However, there were exceptions to this general rule, in that team leaders would occasionally receive a longer block of three or four days training. This training would focus on management skills, like 'leading a team'. But these courses of three and four days were the exception rather than the rule. They were part management and part operational. The operational aspect was acquired in one-day sessions with the rest of the team. The management skills were acquired in a block with other team leaders. However, it is important to note that this training was not necessarily linked to qualifications; it was not credentialised training. Training of this type was conducted in the in-house classroom, although occasionally external conference centres had been used. An

external provider normally taught such short courses as these. In the past, the plant used to run courses themselves, but as workforce numbers diminished this training was no longer offered, on the basis of reduced resources (Interviews, 2001)

Training Practice

The training facilities at the plant were limited. The Personnel Department was housed in a long green metal structure rather like a Nissan Hut. Alongside this structure and then forming the third side of the car park, were several other odd, prefabricated huts and buildings some of which appeared to be used for storage and others as functioning rooms. One had a sign which stated 'Training for Teamwork'. For this reason much of the training for the workforce, at all levels was off-site.

Indeed, at a general level and despite appearances, there appeared to be much less involvement in the (nationally developed) company training programmes by the plant's staff, than was indicated at first sight. In part, this appeared to be the consequence of a relatively *ad hoc* and somewhat hesitant approach to the development of training programmes. As stated:

Training here has never been seen as something to be organised and as something that contributes to achieving an end goal. (Management, 2001)

One exception to this tentativeness was the apprenticeship scheme. This programme was formal and laid down by the national requirements of the modern apprenticeship scheme. Nonetheless, these schemes had their own dynamic in relation to developments taking place at the plant. To illustrate, in 2001 the plant recruited six apprentices and only one graduate because of transfers from the Ebbw Vale plant (Manager, 2001).

Alongside this situation, there was for a long time a problem in recruiting graduates with Metallurgical Science degrees, but this situation had improved. This may have been due to the relationship the plant trainers had developed with the local university with whom they had developed a new degree. There was still a problem with this subject in that Metallurgy was not available as final secondary school subject level or a vocational Higher Level Certificate (HNC) subject and therefore it was difficult to get people trained in this area at a lower level than graduate (Interviews, 2001). Other informants claimed that there were difficulties in attracting and retaining graduates in very recent years, probably because of the uncertainties in the industry in general and the poor image of the steel industry and Corus in particular (Interviews, 2001).

More generally, training was organised in a regular way, as part of the shift patterns of working in the plant. The expectation was that the workforce should have between five and ten days training each year. Often this was technically focused and involved 'on-the-job' training. However at a plant level, it was also acknowledged that it was often difficult to provide release from jobs where employees were directly involved in production work. As stated:

...where people are involved in production systems, it is difficult to give people release from the job that they are doing. It is easier if we are talking about office workers here. Because people on the production side have got jobs where they just can't walk away from

them. ... What you have to do is pay someone else to go in and do that job while this other fella is doing training... [or]....the course would be when they are not working in their shift pattern...and they get paid for coming on the course ...(Manager, 2001)

However, with recent developments in work organisation, particularly with the establishment of team working, as well as changes in the process of production, particularly in the finishing areas, training was beginning to acquire a renewed importance. As noted by plant management:

And what we are doing now with the works manager is trying to implement that into this organisation, to say to manufacturing people that 'yes we do train but we train for a purpose'. Because what we tend to do is to put something on we think will be worthwhile and then when we consider 'well why is it worthwhile, we don't always know why its worthwhile and what it contributes to, so we don't have a strategy document which says we will do this and this to achieve this'. (Manager, 2001)

The implication of refocusing on training was to broaden the coverage of the training that workers receive:

I suppose you could say that our unwritten strategy now is for our manufacturing people, for our shift groups, is to move away from what we would call operational training, operating kit, operating machinery, basic maintenance tasks, to move away from that because I think we have saturated them with that because its easy to do training its easy to understand and we can see where it contributes, and we are trying to move towards a knowledge based performance training. So we are educating people more about why they operate the kit in a particular way rather than how to operate the kit. The aim is to improve their problem solving ability and their understanding of that process. They will learn these on site. (Manager, 2001)

This refocusing acknowledged a particular aspect of training that had its roots in a past hierarchical form of work organisation, where workers were expected to undertake specific and regular tasks in one area of expertise. In this respect it was the on-line management who made decisions, decided what would be done and for what purpose. This problem was summarised by one manager as follows:

The knowledge that is needed for these guys is all in the heads of our managers. For instance if you look at our five star mill, although there is basic theory about rolling a five star mill, the actual Trostre specific knowledge of rolling on a five star mill is in our managers heads. So the task is to get it out of their heads and into the heads of the teams. so they would do this off the job but in housethe need for this is because there may be a problem for example on a night shift that the workers can't resolve, because they don't have the knowledge to resolve it, they don't know why it's caused or what a possible solution will be. So that gets referred to the day management team to sort out. (2001)

In fact, this initiative in this particular work area constituted an attempt to take the principle of team working a step further than had been achieved to date.

The aim that we have is that whenever any problem crops up on shift they are equipped to solve it. This won't reduce the dependence on the engineering team but will build up their engineering skills. These are not apprentices or time served craftsmen they are just operators who may have some mechanical aptitude. So we are trying with the teams to build up their maintenance ability so they can do simple changes. So they won't rely so much on the skilled engineering team for routine maintenance. The idea is to get them to understand more of the process beyond their actual operation. This would probably be done in day bursts normally in their teams but quite often some of the team depending on the work at the time. But we leave this decision to the manufacturing team. (2001)

In practice, the majority of courses offered at the plant was conducted on-site and, when appropriate, with an external trainer coming into the plant.

The reason for this change of focus was that on the original team training programme the emphasis had been on team leaders and less so on team members. As one respondent noted:

What has happened is that we put a lot of effort into specific groups like team leaders. We didn't put so much into team members, which was a massive mistake and we put even less into the PIT so you then had team leaders who suddenly found a massive voice in the works. They work as a team on shifts so you have six team leaders plus the co-ordinators who work here on shifts who run the works. Then you've got the team members who have had some development but it's only really latterly with things like the outward bound that we have been getting to them properly. Then you've got the PIT who are still trying to work in the same old way and that is the problem. Where they are taking things on themselves which this team over here could do we are missing tricks with the PIT and they could be doing more development work....this is being addressed now. (Manager, 2001)

But, the additional problem was that much of the training on offer was on-the-job training, rather than dedicated teamwork training. As stated:

...really the only 'on the job' training we do in the plant is where I may teach you to operate a piece of kit because I know how to use it. You say are a new person coming on to my line... worker to worker really...it's because of the way the organisation is structured, we don't have defined trainers anymore for our processes so its 'sitting by Nelly' kind of stuff really. We did have defined trainers but we don't anymore after restructuring... we use the expertise people have and we pass it on...(Section Manager, 2001)

This practice was confirmed by operators. In the control rooms for the annealing and related lines, for example, operators who were in 'training' for such work learnt by sitting next to experienced operators. When they were deemed ready to take over they began working alone. This was a process of mentoring and learning by example. Effectively the trainee operators went through a process of learning the operations of the mill line, starting with the entry and exit ends and then the middle where the control station was located. In effect, the operators undertook the operating tasks that the controller was monitoring before they began working in the control room (Interviews, 2001).

Thus, training practice in the plant qualified what at first sight appeared to be a comprehensive and detailed training provision for this workforce. Much of the tension that emerged in practice came

about because of the reduction overall in training provision and the immediate demands of work in the context of a vastly reduced workforce.

Training and Skills

While much of the emphasis in training, especially for the team members was on technical skills there was an increased awareness of the necessity of generic and in particular 'soft' skill development. In part, this increasing recognition arose from the changing focus in production, in particular with the developing emphasis on customers.

Specifically, the shift towards multi-skilled team working pushed the management to think about generic skills, as part of the complement for more technical skill acquisition. It was argued by some that generic skills had become very desirable. One senior manager, for instance, observed for the British side of the company:

If we're looking to create self sufficient teams..... remember, before, the production and maintenance workers were not working in teams at all, sometimes they would make work difficult for each other because they were rivals...now its different because they work in teams.... so we have lots of training for team leaders on how to manage your teams, training on interpersonal skills, team workers and team leaders training in problem solving and decision making,so yes this is very much the way of the future..... when the teams were created it was off the job training as well as on the job training...people were put on at least three weeks training to become a team leader and at least a weeks training to become a team workers.. which would not just be on technical aspects of the job, it would be on other generic skills....Now we have a bit of a problem which is, once you've got the big team working training over, you have to make sure people joining the teams of the future receive appropriate training, which will not be so easy because you were putting tens of hundreds of people through big training programme to create these teams but the maintenance of the teams is quite a problem (Senior Manager, 2001).

But these more general observations had their plant counterparts. There was recognition that there had been little attention given to the actual needs of workers and with team working this had begun to change. As noted:

What I think we have lacked in the past is the balls to go up to people and say what do you want out of working here. You are doing a good job. Here's a development point. We have never been good at doing that so we've never faced people and talked about their performance or asked them what they want to get out of life. And we've done that recently here and what we've found is, we've found people who wanted to get involved but didn't know how as much as anything. That's one part of it, you find things out and then you know where you stand with people. From that then you can start to look at what is the best ways this team can start to manage themselves. (Section Manager, 2001)

The workforce was sharply aware of these needs, and the way in which training did not meet them.

One problem arose from the practice of team working, where increasingly there was a reversion to former ways of organising work. Thus:

A lot of us have taken an attitude now that you are better off in a dedicated position. I mean obviously the concern of long term employment comes into it, how good you are at your job as well and most crews now you go into work and you see the same people on the same jobs. We have done it ourselves. We have gone back that way ourselves. The system we've got now is basically, everyone has their own job, everyone is number one something and then everyone has to have a number two, so we all basically have two jobs. I can't speak for every line but you see the same people now doing the same jobs. They haven't stopped us from doing it and they see the benefits of the dedicated inspector. (Team Member, 2001)

Increasingly, it would seem that the teams are developing internal specialisms and thus the acquisition of a broad range of skills cannot be met. As stated by one group, comprising the team leader and five team members:

Well you haven't got the relevant training for the line....they [members] won't get it...they will have to pick it up.[the problem is that the management] have taken an experienced man from us a few months ago who done the job twenty five years and they haven't replaced him. At the moment, [Team Member 1] here is trying to do his job. Well [Team Member 1] is doing part of it and [Team Member 2] is doing part of it or trying to learn a part of it, so instead of one man doing the job we got two. They are doing a good job but its not the way it should work. They should have been trained especially (Panel Interview, 2001)

This panel went on to observe:

This is the worst crew on the line, we are the oldest, most of the other teams have worked on the [line] but our team has lost so many members and some of the newer ones were tractor drivers or on cranes and now they are supposed to be working the line and they haven't been trained... (Panel Interview, 2001)

The problem lies with the difficulties for workers in securing the appropriate training for the skills required. In part, as noted above, this situation arises because of work demands and pressure that meant that time release to train is difficult.

But this situation is likely to become more acute as workers are expected to acquire a broader understanding of their job. As noted by another panel:

...there is a lot more now where you are interacting with people and like we have gone from working the line to now having to deal with people, to dealing with customers, taking people round and showing them giving spiel about the line. We have never had to do that before. We have never had to talk to visitors or talk at meetings... So more training in interpersonal skills, presentation skills. (Panel Interview, 2001)

Overall, these demands were beginning to place pressure on the team members, and the working of teams.

However, it was frequently observed that where the plant employees could convince management of the relevance of external training, then the company had a record of supporting such training, financially. The qualification was that much of this type of training (for example in more than one case an external university course in engineering) was in the employee's own time and subject to the demands of shift working and the like. As a consequence, external training of this type was much more likely to be pursued by day shift workers and staff. In any case, it involved relatively few members of the workforce at any one time.

Overall, it seemed that the plant and the company more generally, attempted to meet its changing skill requirements in an *ad hoc* way, which resulted in uneven provision. There was a broad training provision available. However, for specific sections of the workforce and particularly team members, the provision was often restricted (in terms of opportunity), technically focused and learnt on-the-job. The outcome was that for many employees at the plant the training provision did not meet the changing requirements for the competencies that were increasingly part of the job.

Assessment

Overall, the training for staff, particularly managerial staff, appeared to be comprehensive, whereas in practice the training for operators had in an overall sense deteriorated. The outcome was a variable and uneven provision that did not necessarily meet the skill requirements of the workforce in a direct and immediate way.

At the level of senior and works managers, there was a general view that they must train and must ensure that other workers get the opportunity to train and up-skill. Towards this end, there was a range of courses available to both staff and team members and there was provision for financial and other support where team members were able to convince management of the relevance of designated training. Nonetheless, this often involved off-site training and occasionally training in the team members' own time.

However, at the team level the situation was complex and uneven in its outcome. On the one hand, it was clear that many team members welcomed the formation of the teams and the training that went along with it. On the other hand, it was becoming increasingly difficult for the teams to operate as multi-skilled individuals and understandably there was a practical reversion to past forms of work organisation and arrangement, within the teams. Equally, where team members either required training to enhance their skills for particular jobs or in relation to the way in which the work practices were developing (particularly in relation to customer awareness) it was often difficult to obtain release to attend appropriate courses. If team members did overcome these apparent obstacles then the company did facilitate time off and sometimes financial assistance. The outcome is a relatively 'patchy' provision of training for team members.

Section Five: Future Needs

The training needs for the future are linked to the changes that are taking place within the industry. At an industry level there has been a move towards team working, modernising plants and developing a greater involvement in down stream production activity. Such developments are linked to perceived gaps in the current training provision.

Skills Needs

There are four principal needs identified:

First, the changing production requirements had created gaps in the training provision in the following areas:

- Quality
- Just in time delivery
- Fault reduction
- Customer relations
- Managing contractors

These features of production were all inter-connected and bound up with the first steps that the company has taken towards tailoring production and focusing on downstream activity. Both workers and managers noted these developments, and it was not uncommon to hear comments to the effect that in the past 'we worked in our area and took no notice of anything else in the plant'. Clearly the staff reductions, the moves toward multi-tasking if not multi-skilling and the productivity increases were part of this growing awareness. However, without exception it was noted that the training provision available to address these issues was variable and partial.

Second, there had been a major shift in the form of work organisation at this plant over the last four years, with the establishment of forms of team working across the workforce. While there was unevenness in the implementation of this form of organisation, initially involving extensive training, there was a feeling across the workforce that more needed to be done. There was a general perception that team building required attention. However, the complication not addressed in terms of training was the informal reorganisation of the teams towards specialist and focused work tasks. Particular reference was made here by a number of managers and some workers about the importance of coaching and mentoring. It was noted that the procedure of 'Sitting by Nelly' to acquire the skills to run the control rooms was 'quaint', to say the least.

Third, a general concern was expressed about credentials, particularly by workers. In the context of widespread redundancies over the last two years, and the prospect of further rounds, although this plant would appear to be secure, there was unease about job futures. In the absence of credentials these relatively well paid workers faced difficulties obtaining jobs at the same level elsewhere. This problem of transferability as well as employability in a plant committed to up-skilling was something that the company as a whole had not addressed, and was unlikely to address in the near future.

Fourth, there was a general view that old and traditional forms of training should be reviewed. The following was emphasised by trainers and some workers:

- Interactive IT: This was been particularly by young workers as desirable and necessary. Trainers were also committed to the development of such procedures, but were not in a resource position to follow it up.
- Work related training, focusing on technical and social skills was frequently mentioned. There was a view that much training was either very narrow or not connected to the

- complex relations of work. This was both within the plant and for the plant as part of a multinational company that was changing in a number of ways, particularly with regard to the new emphasis on down stream activity.
- Involvement of educational agencies: The question of outside agencies was raised in relation to qualifications, in part reflecting the UK educational system as well as recognising the importance of externally recognised qualifications.

Assessment

The overall situation in the UK company and specifically the Trostre plant was that the company provision was comprehensive and geared towards both management training and, to a lesser degree, the workforce more generally. With the changes that had taken place at Trostre, there was a clear recognition of the skills needs at the plant but a less certain way of addressing these needs. While workers had a guaranteed right to training, this generally was of a job specific sort. Where training was required it usually involved external providers, such as the local colleges or specialist training for managerial staff at the central company training facilities. Nonetheless, these were staff with long experience of training for their jobs and for job related activity. In particular, when the decision was taken to move to a team based form of work organisation, British Steel plc. introduced a comprehensive programme of team building. However, since the merger to form Corus this type of activity was not as evident as in the past, raising a query about the preparedness of this workforce for the changes that were in train within the steel industry.

Three specific points should be noted:

First, the training provision for managerial staff was specific as well as comprehensive in scope. This provision not only addressed the needs of a company undergoing the transition from a nationally-based and focused organisation to a multinational one, but also attempted to meet the needs for younger staff to acquire the qualifications increasingly necessary for management.

Second, there appeared to be a well resourced and comprehensive programme of study for the small annual intake of apprentices. Nonetheless, two qualifications should be made. First, in relation to the actual provision of the College training, which was not necessarily focused on the specific needs of the steel industry. Second, and more importantly, the follow up training within the plant, was often on-the-job (informal) and fairly traditional in form.

Third, it was apparent the team members in the plant had experienced considerable change in work practices and indeed received training associated with these changes. In addition, there was an organised training provision and 'right' for all team workers on an annual basis. However, increasingly it had become apparent that the training provision had not kept up with changing work practices. It was also the case that the training offered during training days was not particularly well thought through or relevant.

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