

## Sudbury's Working World

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Wallace Clement, *Hardrock Mining: Industrial Relations and Technological Change at Inco* (Toronto: McClelland and Stewart 1981).

HAS THE NATURE OF WORK changed as technology has increased mechanization and automation? Have relations between labour and management changed under the impact of new ideas in industrial relations? Clement seeks to answer these questions by examining the case of Canadian mining primarily since 1945. His focus is upon the International Nickel Company (Inco), the giant multinational among Canadian mining companies. In addition to answering what it is like to work in mining and smelting, Clement also wants "to work *towards* an analysis, explanation, and understanding of class transformations in Canada since the Second World War." (9) Since he thinks that work is viewed by management and employees from diametrically opposing positions, he operates from the viewpoint that "there are in fact two realities and that each reality is shaped by the actions of the other," or that the actions of each side "can only be understood through the relationship of one side to the other." (10) The study explores that relationship.

Clement argues that his study is justified because at present the mining industry is turning an important historical corner. Underground it is moving from hand labour to mechanization and in the smelting process it is moving from mechanization to automation. "Both changes result in enormous capital expenditures and reduction in labour requirements." (11) These changes also have implications for workers in their relationships to machinery, among themselves, and between workers and management. Clement tries to explore those implications and goes so far as to claim: "The massive layoff in 1977 and strike in 1978-79 would come as no surprise to those who have examined the company closely. They are part of a longer and larger pattern." (12) While Clement may make that claim to legitimize his study, whether he has fully shown the longer and larger patterns needs to be closely examined.

The book is well organized. It contains a balanced mixture of theory, general information on mining, and specific analysis of Inco. After outlining the staples approach, which has dominated the study of Canadian resource industries, Clement describes the class approach which he thinks is more applicable, because the staples approach omits to relate the external dynamics of technology, markets, and capitalization to the internal dynamics of division of labour and social conflict. The second chapter reviews Canadian mining by examining placer gold in British Columbia and the Klondike, coal mining in the Atlantic and Pacific region, copper and zinc in the Kootenays, and silver extraction in Northern Ontario. The third

chapter provides an anatomy of Inco. Much of the skeleton has been derived from Swift, Lang, Deverell, Thompson, Main and other authors. The next chapter on markets, labour, and the mining industry is primarily an informed statistical survey. Chapter five through seven present much of Clement's original research. They provide a solid guide through Inco's underground operations, the mills and smelters, the nature of work, and how mining processes are changing as well as a review of the health and safety situation. The other two chapters examine managerial strategies for "keeping labour in its place" and how workers "fight back." Thirteen appendices explain how the data were gathered, chart Inco's profits, present statistics on the exports of nickel, numbers of miners, wages rates, flow charts, injuries, and labour force distribution.

Even before entering into his examination Clement claims "Managers, as representatives of capital, and workers (often through their unions but also outside them) manifest concretely the class struggle inherent in organizing capitalist production." (26) Thus, the theoretical first chapter is as much a reassertion of Marxian political economy as it is a careful setting out of hypotheses and conceptual framework; the book contains elements of self-fulfilling prophecy if one moves directly from the theoretical first chapter to the "political economy of mining" in the last chapter which concludes: "If there are to be equitable and just relations of production and a guarantee of the safest working conditions, it will be necessary for those most directly affected to control the conditions of their work. Miners will have to control the mines." (359) At least Clement cannot be faulted for pretences about neutrality; he is passionately on the side of labour in his class analysis. For instance, after his review of capital formation and mergers which created the nickel-copper multinational, Clement claims:

The capitalists in control of Inco have been among the most aggressive and opportunistic in the world. Since the turn of the century they have systematically taken advantage of wars; they have polluted the environment and resisted pressure to clean up or prevent pollution; they have seduced governments into granting great concessions and subsidies; they have often dealt savagely with their labour force by closing down operations and imposing layoffs; they have diversified and internationalized their operations, shifting capital generated in Canada to other areas. . . . Throughout its history the executives of the company have been driven by one object, profitability, and have been particularly successful in achieving it, especially during wartime. (48).

This indictment may be true in its bits and pieces yet nowhere does Clement show, by comparison, Inco's executives to have been out of the ordinary. And his remarks about profitability seem already to be dated and out of place — Clement's type of generalization offers no understanding as to why some of these same companies fail; and Inco is at present failing miserably. Surely, social scientific investigations should have more than a six month applicability.

Clement does present a solid account of how the communities in which Inco operates (Sudbury, Port Colborne, Thompson) have remained resource centres subject to the worst boom and bust cycles. Here he begins to intersperse his account with statements from union leaders, labourers, and management to show perceptions of the reality his information is portraying. These statements, especially in the sections on work processes, are one of the highlights of the book. The significance of perceptions is underlined in that Clement's statistical information is not always correct. For example, as he tries to profile Sudbury he claims that the "higher male to female ratio (1.11 to 1) in the twenty-to-sixty-four-year old age group persists because when women growing up in the area find few opportunities for employment, they respond by moving out." (51) In fact, regional assessment rolls for 1979 and 1980 show that in

Sudbury males only outnumbered females in the age categories 36-45, 46-55, while females outnumbered males in the categories 20-25, 26-35 and 56-65, 66 and over. Indeed, the overall ratio of females to males was 1.02 to 1 and hardly substantiates Clement's view. While the point may be minor, it relates to the larger issues of accuracy and stereotyping: Clement seems to structure information toward his concept of mining communities and their dependency role. None of his information suggests that he has seriously examined the basis for his claim "Sudbury remains Canada's largest company town." (50)

Central to his study is mining — its technology and its social relations. Clement provides a comprehensive account of the manner in which ore is recovered from open pits to depths of over 7000 feet. He clearly presents the types of mines by sample cases, the methods involved in each, the shift and supervisory system, the conditions and situations underground as well as the workers' feelings about these workings. Diagrams and pictures help make sense of the complex systems of stopes, drifts, hoisting apparatus, crushers, cages, cut and fill methods, scoop trams, slusher and ore passes. The capital investment in plant and machinery, and the monstrous size of the new methods are well shown. Similar to Clement's section on Inco's internationalization and diversification much of his material and evidence are drawn from published sources such as the *Inco Triangle* or the *Canadian Mining Journal*. But he has provided a significant service in drawing it all together and providing a clear overview. Occasionally, he could be criticized for not including important details, for instance, regarding the expansion method which make rock bolts function (123) or how ore passes are unplugged (both crucial to miners' safety). In general, however, he has captured what every miner knows and has experienced: within the past decade the world underground has been mechanized (locally, often termed "rationalized"). When Clement

turns from describing how that mechanization took place, or how many ramp mines were opened and scoop trams and jumbo drills introduced to analyzing its meaning, he brings his study back to the issue of class relations. He shows that the huge capital expenditure on machinery has altered the workplace of the miner. The hard physical labour is generally gone or disappearing but so is the need for special skills and working at a variety of jobs. Mechanization underground has transformed the miner from a skilled craftsman (as driller or slusher) to semi-skilled machine-tender working at the pace of the machine's capability, including its breakdowns.

Clement correctly notes that mechanization underground has decreased the autonomy of miners, especially as work areas grow larger and more centralized. Supervisors can more easily "keep a closer watch over workers and workers themselves have less discretion in organizing their work." (157) What Clement takes pains to point out, by noting how supervision has become more direct and mining less craftlike and by outlining comparisons with parallel changes in coal mining, is that "work has been reorganized for the miners, not by them." (161) Clement criticizes the way in which new technology is introduced in the interests of management, namely to penetrate the "miner's control over the pace of his work and the skills he brings to bear. Management's strategy in introducing technology has been to decrease its reliance on the skills of the miners and to minimize the number and quality of workers needed." (162) For Clement technology is designed "to meet the needs of capital, not labour." (162) Though he acknowledges technology's humanizing potential, Clement at this point only claims, he has not fully shown, the one-sidedness of technology's application. What would reinforce his general illustration on the mechanization of underground operations would be global figures on the number of underground workers and per

person output in the late 1960s compared to a decade later. His comparisons of the different types of mines provide an indication but leave out the larger picture.

When Clement turns to the smelting and refining processes above ground, he identifies "a strong tendency on surface, particularly evident since the early 1970s, to move from mechanized production to automated production. . . . The consequences for labour are just as significant. . . . Much of the bull-work has been eliminated, but so has much of the craft production; they have been replaced in many instances by dial watching and patrol duty. . . ." (163) The claim is substantiated by examining a series of mills, smelters, and refineries of different vintages and by showing how different technologies are applied. Again Clement demonstrates that the need for skilled labour is replaced by the demands for maintenance work in terms of job redefinition and a higher ratio of maintenance workers to production operators in the newer plants.

While the case studies are clearly set forth and the evidence is adequate, the focus remains on the organizational pattern of work. The consequences of the changes in such claims as "automation seems to increase the isolation of workers; there is less feeling of a working group." (171) are not substantiated. Indeed, the whole section describes the structure of work and its demands and only the extensive quotations — how representative? — give any hint of how this structure is experienced. Unlike the general description of types of underground jobs, Clement here illustrates how much of the work is performed. He shows especially well the ways by which the company has sought to make workers serve as both operators and mechanics in the newer plants and how unofficial production quotas function. Ironically, automation has sometimes reduced flexibility as in the Copper Cliff Nickel Refinery where cutting back on labour means closing down the whole plant or when operating at 65 per cent

capacity a full complement is necessary. (210) Though Clement reports this failure he does not seem to acknowledge its significance to his study as he concludes the surface operations section: "management has introduced technology to increase its control over production." (218) Indeed, the whole study has an atmosphere of the company as the stereotypical capitalist seeking the latest means to coerce and control. While this may be accurate regarding motives, it seems to suggest a teleological outlook among management searching for, recognizing, and applying the most modern methods wherever possible. This viewpoint overlooks the stupidity, failures, and even lack of strategies, especially when companies such as Inco are in a monopoly position.

On health and safety, the stupidity and failures of both company and union do appear. The dangers of mining and smelting are shown by comparative statistics. Inco had a lower fatality record, but a higher injuries record than the norm in Canadian mining. Relying on the Ham Commission Report, which investigated health and safety in Ontario mines, Clement analyzes the role of a dusty, damp, noisy and dark environment, the bonus system underground, and special processes in bringing about death or disease. Mechanization, he shows, may increase injuries in the long run due to fumes and vibration. But most instructive is what Clement terms "the politics of health and safety." The union did not systematically pressure for regulations until 1969, while the company constantly utilized these as bargaining tools. "Safety has obviously become a weapon in the war between the management and the union." (244-5) But it is an uneven war in that the government inspectors are usually former mining company officials and the preventive legislation is not well enforced. Clement shows fairly well that the state "sanctions and legitimizes the right of capital to control the workplace and pollute the environment." (250) He does not examine, however, the pattern of fatalities in rela-

tion to the production drives especially of 1970-71 which points to an even more ambiguous position by the unions on the question of speed-up, overtime, and bonus.

To understand fully the implications of the changes in the structure and technology of work in mining Clement thinks that it is necessary to examine "management's various strategies of containment," (251) which he acknowledges are not monolithic at Inco. He tries to point out the inconsistencies of senior management seeking to introduce a newer, consultative type of industrial relations during the early 1970s, while middle management operated along older paths of authority plus the demands of production. Clement notes that the different work locales require different responses, but in general the strategies of internationalization, divisification, control over markets, and applying technology to replace labour are matched by an attempt to gain "social control of workers." By this Clement understands primarily the system of rules and penalties, the stockpiling of materials, and the laying off of men. To increase profitability and output, a variety of methods such as reducing the labour force or developing new training methods are employed by management. Ironically, Clement again admits, more through his evidence than in his evaluation, that the company is not a free agent in the process by which prices and markets move. (256) Nevertheless Clement is right in pointing out that the company traditionally has built up stockpiles to coincide with negotiations and that it has placed pressure on the union by announcing layoffs quite frequently when negotiations begin. The cyclical pattern of expansion and contraction is shown by the figures on hourly employees in Sudbury which went from 20,700 to 16,500 from 1971 to 1974 but rose again to 18,000 in 1976 then fell by May 1979 to 13,600. Since then it has continued to drop and now stands at under 10,000. The results of mechanization and automation cannot be clearer; their devas-

tating effects on workers are heightened by economic downturns and company miscalculations. The latter factor is given little consideration by Clement who writes as though Guatemala was already a producing operation in 1977. (259)

Clement explores another strategy which management utilizes to control labour: the disciplinary system. He notes the attempt to modify this approach toward workers and to put a new face on management after 1970. Instead of penalization by time off work (i.e., no pay), the new system involves a series of four steps leading to discharge but also to the removal of steps if a positive record is maintained. Misconduct and leave without permission are the main reasons for being penalized. By appeal to higher management, it is possible to obtain redress but that is also a means by which to divide workers from their union since they then do not grieve under the collective bargaining contract. Clement properly concludes that the new industrial relations approach has only been moderately successful: "It is not possible to inspire trust in workers when they are being laid off or experiencing adjustments to the labour force. Nor is it possible when pressure for production continues to mount." (272)

The most thought-out attempt by management to control Inco workers relates to training and skill levels. A module training system which seeks to provide a training manual for every one of the 256 job classifications has been introduced. The company can theoretically train new employees for all tasks and all machinery in a few weeks. The aim is to reduce all mining and smelting to semi-skilled levels and thus to make labour interchangeable and more manageable. The brevity of training and inexperience result in high accident rates among the younger and recently hired employees. Knowing how to do a task is not the same as performing it under various conditions or quickly. As an application of "people technology" Clement notes that this standardization of

work will allow management to try to define jobs so that operations and maintenance overlap.

How do workers respond to the mechanization, automation, centralization, and standardization of work? According to Clement workers have developed ways of "fighting back." He claims but does not show that it "has become a way of life." (299) He does acknowledge that unions have an ambivalent role as representatives of workers' militancy, while simultaneously serving as partial instruments helping the company to contain many forms of resistance once a contract exists. Clement reviews the history of unionism in Sudbury and Inco's strike record. Little of this information is focused upon the issue of worker resistance and instead outlines pay gains, strike issues, and internal feuding. Would Clement consider a review of doctors' incomes, threats to strike, and internal association differences in a similar fashion to the way in which he presents worker militancy? His arguments are more telling when he examines grievances, refusals to work in unsafe areas, absenteeism, and turnovers. He shows that at Thompson in 1973 among single employees the turnover rate was 125 per cent, and that on the average only 40 per cent stayed longer than a year. Clement, however, closes the section with clichés on how unionization has somewhat improved working conditions.

How valid is this study? Clement has definitely provided a service in summarizing the situation and trends in this important sector of the mining industry. He has demonstrated how structural and technological changes affect work. His study reinforces the viewpoint that owning the means of production translates to determining the workplace. Yet he has left a number of significant issues vague or unexplored. His understanding of work is centered primarily upon how it is organized (supervision, method, pace, incentives, health factors, skills). Work as experience is only partly considered (pay

in relation to costs, satisfaction, working in groups with a common social life, strikes as holidays, theft as remuneration and revenge, average age of death). Work must also be related to compensation and not just wages; the 1970s generally saw the end of Inco "company doctors" and the establishment of social services so that the state's intervention cannot be put so resolutely on the side of management.

The fundamental flaw, however, is that the global picture escapes the reader because Clement says so little about the communities in which the operations take place. For working-class persons working together traditionally has included living together either in ghettos or city areas. Many historical studies (for example Crew on the mining and smelting city of Bochum) have examined the consequences of that factor for class consciousness and social protest. Clement writes as though class awareness proceeds out of occupation. If that were so, why do miners in Sudbury work as a class but not behave as such with regard to voting, organizing, and consuming? Is it because so many of them are of an ethnic background, have materially "risen" through that bull-work of which they are proud and think that a sprinkling of sons and daughters as lawyers, doctors, and professors proves that the system works? Some are landlords and most are cottage owners who think their hunting and skidooning have been made possible by working at Inco. Clement has not undertaken the basic sociological task of finding out who his workers are, before making all sorts of assumptions about their class status and actions. Clement reports no citations with the following attitude (which the second-generation worker in Sudbury at least frequently utters in pubs or at camp): "I owe the company nothing but it don't owe me nothing either." Perhaps that absence is due to the questions Clement asked or perhaps his contacts have been too much among the union leadership. His failure to consider how many labourers are in the Moose Lodge, Garson golf club, or the Moose Masons, how many like their family pic-

tures in Inco's *Triangle* (the company's glossy in-house monthly), and most important, what property they own or whether they continue to live in boarding houses or unitary working-class suburbs, means that his judgements on workers' resistance are a mere commentary on another group seeking the best deal for themselves in their occupation. It is not a class analysis or an analysis of "class transformation." Is it fair to ask that so much be part of this study? There would certainly be room for such information if Clement were to approach the issue consistently by limiting himself to the patterns of the last fifteen years, instead of summarizing others' work on labour or company history, except where it is really pertinent. Even at the work place the global picture is muddled -- how many workers were at Inco in 1968 and how were they occupied, and how many in 1978? Are those figures not crucial to illustrate the trends regarding mechanization and automation, and operators versus maintenance personnel? Then we could see how many employees are not directly

in mining or smelting but in the centralized maintenance shops, in the fire crews, and working as guards and shift bosses. Had Clement followed up all the work divisions, he might have noted that supervision has not been the only means of centralization. He might also have noted that management uses mine closings as a means to break up groups of workers who have been together for five or more years.

Clement's approach is far too narrow. While his conclusion that work "has been fundamentally reshaped in Canadian mining in the post-Second World War era" (346) can be accepted, he has only partially described the process. His claim that workers "have virtually no control over the actual work process, which has been programmed into the equipment" (357) may be accurate, but the *pattern* of striking, overproducing through bonus, and then striking again is a pattern also partly determined by unions and the men. For better or worse this suggests that the workers exercise more long term control over their working lives than Clement credits.

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