Relations industrielles Industrial Relations



Joint Union-Management Job Evaluation in the Canadian Steel Industry

Évaluation conjointe des tâches dans l'industrie canadienne de l'acier

Ronald Bean

Volume 17, Number 2, April 1962

URI: https://id.erudit.org/iderudit/1021631ar DOI: https://doi.org/10.7202/1021631ar

See table of contents

Publisher(s)

Département des relations industrielles de l'Université Laval

ISSN

0034-379X (print) 1703-8138 (digital)

Explore this journal

Cite this article

Bean, R. (1962). Joint Union-Management Job Evaluation in the Canadian Steel Industry. Relations industrielles / Industrial Relations, 17(2), 115-126. https://doi.org/10.7202/1021631ar

Article abstract

While a Teaching Fellow in Political Economy at McMaster University in 1961, Mr. Bean prepared this article which is an empirical study of the application of a C. W. S. system in evaluating jobs in the Canadian Steel Industry.

Tous droits réservés ${\hbox{@}}$ Département des relations industrielles de l'Université Laval, 1962

This document is protected by copyright law. Use of the services of Érudit (including reproduction) is subject to its terms and conditions, which can be viewed online.

https://apropos.erudit.org/en/users/policy-on-use/



Joint Union-Management Job Evaluation in the Canadian Steel Industry. *

While a Teaching Fellow in Political Economy at McMaster University in 1961, Mr. Bean prepared this article which is an empirical study of the application of a C. W. S. system in evaluating jobs in the Canadian Steel Industry.

Ronald Bean

Industrial relations in the Canadian steel industry have often been characterized by a high degree of hostility, mutual suspicion and strike-proneness. The national steel strike of 1946, one of the most bitter and violent in Canadian history, was to some extent the result of determined company opposition to wage claims by the United Steelworkers union. More fundamentally, however, it represented the culmination of a management response to the impact of the militant and expanding industrial unionism of the 1940's in which attempts were made by employers to resist collective bargaining as such. ¹

Of the four large producers in the basic iron and steel industry², Dominion Steel and Coal Corporation (Dosco), Algoma Steel Corporation, the Steel Company of Canada (Stelco), and Dominion Foundries and Steel (Dofasco), only Dosco and Algoma had recognized the union

in the early war years. Not until 1944 when Stelco became unionized did the United Steelworkers secure recognition as sole bargaining agency in three of

BEAN, RONALD, B.Com. and Diploma in Industrial Sociology, Liverpool University; M.A., McMaster University; Lecturer in Economics, Liverpool University.

^{*} This paper is based upon an empirical study carried out in Hamilton, Ontario. I am grateful to McMaster University for providing a research grant, and to Professor J.E.L. Graham for helpful comments on an earlier draft.

⁽¹⁾ See Clawson, H.J., «The New Challenge of Industrial Relations», Business Quarterly, Vol. XXIV, 1959, p. 163.

⁽²⁾ Morgan, L., The Canadian Primary Iron and Steel Industry, Ottawa: Royal Commission on Canada's Economic Prospects, 1956, pp. 1-3.

the four large corporations.3 Even more recently, an international survey of steel strikes has shown from an examination of a number of countries of diverse industrial structure and labour organization that strike experience, in terms of magnitude and average duration, still appears to rank highest in Canada. 4

In view of this history of strained relations it is significant to note one instance, at least, in which union-management conflict within the industry has given way to constructive accommodation, and, in this case, to a new approach to wage determination.

CWS Development in the U.S.A.

The Cooperative Wage Study (CWS) system of job evaluation which is now used throughout the industry in Canada was developed in the United States during the war years by a research organization set up by a group of the larger steel companies. 5

It represented an attempt to meet the widespread problem of employee dissatisfaction arising from wage «inequities». Wage rate inequities, or differences in rates for comparable types of jobs within the industry for which no objective justification can be said to exist, had occurred as a result of the structure of the steel industry and its methods of wage administration. There was no standardized method or ranking jobs, no centralized coordination as between wage rates, and wage rate dislocations had tended to accumulate as a result of the changing job content associated with technological innovation.

Following a directive order of the War Labor Board in 1944 aimed at solving the inequities problem 6 the United Steelworkers agreed with the companies to accept the job evaluation manual developed by the CWS group, «tailor-made» to suit the particular requirements of the steel industry 7 and to participate in the implementation of the pro-

⁽³⁾ Dofasco still remains unorganized by the union at the present time.
(4) Siegel. A.J., «Steel Strikes and Bargaining Abroad», Monthly Labor Review, Vol. LXXXIV, February, 1961, p. 123.
(5) See Stieber, J., The Steel Industry Wage Structure, Cambridge: Harvard University Press, 1954.

STIEBER, op. cit., p. 12.

⁽⁶⁾ STIEBER, op. cit., p. 12.

(7) The steel industry is characterized by a highly interdependent series of operations in which responsibility for the smooth operation and coordination of processes is highly important. Thus, in contrast to most other job evaluation schemes, the CWS plan stresses «responsibility» rather than «skill» in the weighing of factors. For example, under CWS the maximum attainable factor weight for «responsibility» is more than 50%, whereas under the National Metal Trades Association plan it is only 20%.

gramme throughout the industry.

Wartime Events in Canada

Although the existence of inter — and intra-plant wage inequities was also apparent in the Canadian steel industry during the war years 8 nevertheless the Canadian section of the union was not nearly so concerned with inequities as was the parent union in the U.S.A. In Canada the union found inequity grievances difficult to resolve and vet its main concern at this time was not with individual wage rate discrepancies but with the raising of the base rate throughout the industry. It was claimed that at some plants the earnings of employees were «below those established as sufficient to provide a minimum decent standard of living as determined by the Labour Gazette, and even below the 'Pauper and Poverty' level determined by various research groups in Canada ». 9 During the early war years, therefore, a focal point in the union's strategy was emphasis upon basic rates as a priority in wage demands in order to raise minimum living standards.

Extension of CWS to Canada

The Canadian union's wartime concern for base rate increases and the practice of pressing for « across-the-board » wage increases for all grades of labour began to cause internal union difficulties in the postwar years. Neglect of special consideration for the rates of skilled craftsmen seems to have been one important factor in the secular narrowing of occupational wage differentials among skilled groups of steelworkers. 10 At a union policy conference it was stressed that officials should press for,

[A] revision of rates in skilled classifications so that differentials between the rates for unskilled and highly skilled workers will more closely reflect the actual difference in terms of skill and responsi-

⁽⁸⁾ See Labour Gazette, Ottawa: King's Printer, Vol. XLIII, 1943, p. 59. Evidence was presented to the Barlow Commission set up in response to the threatened dence was presented to the Barlow Commission set up in response to the threatened national steel strike of 1942 to show that widespread inequities existed in the Algoma and Dosco plants. To correct these inequities a jointly developed job evaluation by union and management representatives was carried out at the two plants under the supervision of W.H. Ley, an official of the National War Labour Board. However, the evaluation was limited to the maintenance departments only and neither party appeared satisfied with the classifications assigned to a large number of occupations. Labour Gazette, Vol. XLV, 1945, p. 822.

(9) Labour Gazette, Vol. XL, 1940, pp. 905-906.

(10) Compare Reynolds, L.G. and Taft, C.H., The Evolution of Wage Structure, New Haven: Yale University Press, 1956, pp. 293-298.

bility required [as] this is a problem which is becoming acute in primary steel. 11

The problem became more pressing when, during 1950, thirteen hundred maintenance workers at Algoma grieved to management, firstly concerning alleged wage inequities as between similar jobs in the plant, and secondly on the question of their low differential rates as compared with production workers in the plant i.e. dissatisfactions from both the existence of wage rate differences and from their absence. The company subsequently met with the union in an attempt to solve the inequities problem at least. But it was found that once an inequity was proved and a wage adjustment made, new inequity grievances were thereby created. An attempt at inequity elimination on a piecemeal basis was clearly bound to fail and consequently the company refused further wage adjustments in the absence of union acceptance of some form of job measurement.

The steelworkers' traditional response to management proposals for job evaluation had been to dismiss them without any real consideration. They had come to regard job evaluation as purely a « management tool» designed to depress wage levels. By 1950, however, the union in Canada had begun to take a more active interest in the accomplishments of CWS in the United States 12 and a committee sent there to inspect CWS arrangements had been favourably impressed by the results of the programme. If applied throughout Canada it seemed that CWS could be expected not only to eliminate inequities but also to halt the 'shrinking' differentials of tradesmen within the union. Therefore, the union agreed to Algoma's job evaluation proposal on the understanding that the development, installation and maintenance of such a scheme must be a cooperative effort on the part of both the company and the union and it was further able to persuade the company to accept the actual CWS principles of evaluation. Thus in 1951 Algoma became the prototype for the industry's CWS job evaluation in Canada when job descriptions and classifications were begun in the maintenance departments of the company.

⁽¹¹⁾ Steel Labor, Canadian ed., Indianapolis, Vol. XVI, January 1951, p. 3.

⁽¹²⁾ From discussions with union officials it would appear that the Canadian section of the union possessed little detailed knowledge of the benefits secured in the United States from CWS. Perhaps such lack of communication between sections of an international union might appear surprising. However, it has been shown that the Canadian union has often gone its own way on policy issues and been & directed by the Canadian leaders with only infrequent contacts with the international president and officers . See Logan, H.A., Trade Unions in Canada, Toronto: MacMillan, 1948, p. 257.

CWS Procedures

At the commencement of a CWS programme in a plant, there are set up two three-men committees working full time on the study, from the union local and company respectively. Each committee has equal rights in the sense of freedom of access to the plant for job observation and discussion of job duties with employees, and equal responsibilities for the successful completion of the programme. However, the parties' joint-participation in the scheme is not so completely mutual and allembracing as in some of the more successful attempts at unionmanagement cooperation to increase productivity, for instance. 13 Under CWS procedures the committees are not integrated but, rather, still retain their separate identities. Traditional union-management dichotomy does not give way to an unreserved pooling of separate interests. The initiative in the establishment of job descriptions and classifications rests with the management committee; the union committee's participation being through criticism and modification in terms of an overall review function.

In the final analysis a dual rather than an integrated committee structure was probably the only workable procedure to meet the situation. In the case of fully integrated committees for union-management cooperation to reduce costs and increase productivity, it is assumed that the parties have a joint interest in these matters upon which agreement can readily be reached. On the other hand, in the CWS programme the question of job classification leads in the end to the problem of wage rates, a fundamental collective bargaining issue upon which it is assumed that there is bound to be conflict of interest. With such a committee structure the propensity to bargain would be encouraged, not inhibited. Thus there still remain aspects of negotiation and bargaining over appropriate classifications for jobs. In any case it is apparent that job evaluation cannot be based upon any completely objective or absolute standards. It is merely informed opinion and value judgment applied as systematically as possible to the whole of the job structure.

In the actual CWS evaluation a system of critical job factor requirements is employed. For example, in the Manual for production and maintenance workers there are a total of twelve factors: two training factors, two skill factors, four responsibility factors, two effort factors, and two factors relating to working conditions. Each of the factors

⁽¹³⁾ See «Union-Management Cooperation», in Lester, R.A. and Shister, Y. (eds.), Insights into Labor Issues, New York: MacMillan, 1948, pp. 87-115.

has a number of level or degrees which, in the classification of a given job, are to be weighted in accordance with a specified range of « point values » assigned to the factor concerned. For example, the first factor, « Pre-Employment Training », is divided into three levels which correspond to jobs requiring persons with unskilled, semi-skilled and skilled backgrounds. In this case, the specific point values for these three levels are, respectively, 0, .3 and 1.0.

Given the factor requirements, the process of classification entails an assessment of the appropriate level and «point value» for each factor when determining the 'content' of a job. The term «Job Class» denotes the total of point values, rounded to the nearest whole number, which have been assigned of the factor requirements of a job. For example, a job having a total of 11 points in referred to as a « Job Class 11» job and at the present time the highest rated jobs in the industry received a «Job Class 32» clasification.

After each job has been described and classified the next step is to assess its money value. The rate structure in a particular plant that results will be governed by two things: the base rate established for the lowest job class, and the rate differential separating job classes, the job class « increment ». Under CWS, the increment is a fixed sum throughout the progression of job classes, resulting in a straight-line wage curve. It is significant that both the base rate and job class increment are determined, upon union insistence, by collective bargaining. Once these are agreed, the rates for all jobs fall automatically into place. Assuming, for example, a base rate of \$1.855 and an increment of 5.9 cents, a job falling into Job Class 11, i.e. ten increments higher than one at the base rate, would be paid \$2.435, or 58 cents above the base rate.

Therefore, the CWS evaluation which places each job in a particular job class, which can be altered only in the event of a change in job content, and yet permits flexibility through collective bargaining on the wage to be paid for the base rate and cents increment between job classes, succeeds in fusing relative wage determination by technical job evaluation and absolute determination by the collective bargaining process.

Present Extent of CWS in Canada

Soon after the establishment of CWS at Algoma the union's new industrial engineering department in Toronto, set up to advise on CWS

installation, began to encourage other locals to press for CWS provisions in their collective negotiations. For the industry as a whole, the decisive CWS 'break-through' occured in 1952 when Algoma, Stelco and Dosco accepted CWS provisions for *all* production and maintenance jobs within the bargaining unit.

It would seem that the scope of CWS agreements within the industry depends largely upon the scope of the union's bargaining rights in the industry as a whole. At present, the programme is installed in nearly all sections of the iron, steel and mining industries with which the U. S. W. A. bargains. All the union organized basic steel plants 14 and most of the structural steel industry have now completed CWS classifications. In addition, the programme has been installed in parts of the iron-ore mining and gold mining industries together with sections of the metal fabricating, wire-rope and miscellaneous manufacturing industries with union contracts. Two companies have also developed classifications incorporating CWS principles for «white-collar» technical and clerical workers. In all, the union has CWS contracts in approximately eighty different plants and mining concerns spread across Canada. 15 Significantly enough, the provisions of CWS cover a union membership of more than 60,000 employees, of whom only 20,000 are employed in the basic steel industry from which the programme originated in Canada. This would appear to be a reflection not only of the variety of the United Steelworkers industrial interests, but also of the flexibility of CWS as a job evaluation technique in that the steel Manual is now constructed so as to classify adequately any type of job found in the industry. 16

Reactions and Consequences

In Canada the pressure for the adoption of the CWS programme came entirely from the union and it is no exageration to suggest that in most companies CWS was finaly installed in spite of, rather than because of, management. In at least two companies in Ontario CWS was introduced only after the union had called a strike to compel

⁽¹⁴⁾ A CWS programme has even been installed in the Dofasco Company which does not recognize the union. It is administered unilaterally by management officials and was installed in accordance with company policy of keeping abreast of important developments elsewhere in the industry.

^{(15) «} CWS in United Steelworkers of America Contracts in Canada », Toronto: U.S.W.A., 1960 (typewritten).

⁽¹⁶⁾ Compare Sweeney, V.D., The United Steelworkers of America, Twenty Years Later, 1936-1956, (Published by U.S.W.A.), p. 195.

acceptance of the programme. Two reasons for management's negative response to proposals for CWS are apparent. Firstly, that should CWS be accepted, the union committee in a plant would possess equal rights with the company in its installation and administration. The union in pressing for joint determination of job evaluations was asking for penetration into an area usually regarded as falling exclusively within the sphere of management. To accept the proposals would necessitate management partially surrendering control over one area of enterprise administration and would be an interference with what are sometimes considered essential managerial 'prerogatives'. Thus in some companies CWS ran head on into management's stand on its own right to run the business. ¹⁷ In particular, the durable and long-term nature of the CWS programme led to hesitation on the part of many companies regarding the wisdom of admitting the union as a permanent partner in the determination of their wage structure.

An enqually important consideration was the cost of CWS installation. The companies realized full well that wage increases would result in that under CWS arrangements no employee can have his wage rate cut as a result of the evaluation. So long as the present incumbent holds his job and his current rate is higher than the new CWS rate, then he continues to receive the highter rate i.e. after the evaluation has been completed rates on some jobs can be increased, but none immediately reduced — the normal turnover of employees being used to eliminate, eventually, such « out-of-line » rates. In addition to the probability of high wage costs there were also administrative costs of CWS implementation, such as securing the services of industrial consultants to advise on the installation of the programme — costs which would be more disproportionate in relation to total labour costs for the many smaller companies than for Stelco, Algoma or Dosco.

The eventual acceptance of CWS throughout the industry was mainly the result of persistent union pressure and once the large companies and 'pattern-setters' had accepted CWS it was apparent to the smaller companies that the union would soon compel their own acceptance of the programme. But much firmer company resistance would have been shown had it not been for the industry's favourable economic position. The early CWS agreements were secured in the immediate post-1951 period at a time of high profits and boom-time conditions for the steel industry.

⁽¹⁷⁾ Financial Post, Toronto, Vol. LIII, July 11, 1959, p. 57.

Once CWS had been installed, however, and its results made apparent, the companies came to regard it much more favourably. All the seven companies in the Hamilton area visited in connection with this study admit that they would not now abandon CWS without some similar job evaluation scheme to replace it. The rationalized system of rate setting which now exists has highlighted the limitations of the previously uncoordinated set of wage rates and rate relationships. The most important gain secured by the companies from the programme is that complaints alleging injustice of individual wage rates have been virtually eliminated. This supports the findings of other studies of management gains from job evaluation. 18 Furthermore, the fact that CWS installation compelled management to discuss job classifications and rates with the union often led to a really intensive survey of the company's entire wage and job structure and sometimes brought more sharply into focus earnings relationships and job responsibilities of which management had been previously unaware. The result has been a tendency towards greater stabilization and management control over labour costs.

Union gains from the programme are equally significant. In addition to direct wage increases from CWS ¹⁹ these gains can be summarized as follows:

- (1) The programme provided a rational, systematic method of determining job and rate relationships which was acceptable to the union as it participated in the development of the study.
- (2) It enabled the union to judge its overall rate relationships more intelligently and facilitated wage comparisons between geographically separated plants.
- (3) The union was enabled to develop to a large degree consistency in job classifications in all the plants in which it bargains, thus furthering the union aim of national wage uniformity and « equal pay for equal work ».
- (4) It enabled the union to establish higher proportionate rates for its tradesmen, thereby eliminating the discontent which was developing in these ranks prior to the installation of CWS.
- (5) It provided the union with a yardstick for measuring the equitability of the various incentive plans in the industry.

⁽¹⁸⁾ Compare Nicolopoulos, L.G., Formal Job Evaluation and Some of Its Economic Implications, Montreal: McGill University, Industrial Relations Centre, 1954, p. 27.

⁽¹⁹⁾ See Steel Labor, Vol. XVIII, October, 1953, p. 3.

Evaluation

In view of the history of conflict within the Canadian steel industry CWS does seem to represent an important and progressive development. A considerable amount of goodwill must have been shown on both sides to enable a task of the magnitude of CWS to be completed with a minimum of delay and disruption. In the Stelco organization alone there were 2,700 job categories described and classified and agreement was reached on all of them without a single referal to arbitration as provided under the CWS procedure. ²⁰

Nevertheless, no one in the industry would claim that CWS is a panacea for all industrial ills or, even, a sufficient answer to all wage problems. It does not eliminate time study or incentive payments, for example. What it does aim at is the establishment of an acceptable and workable wage rate structure in which the rate for a particular job no longer depends upon such intangible factors as the personality of the worker or the whim of the foreman, but upon the job itself. Moreover, CWS does make explicit the exact criteria which are being used in rate setting and provides a systematic method or ranking jobs into a hierarchical structure.

One of the most notable features of the programme in Canada is that the union rather than management has taken the initiative in shaping union-management relations in this area of wage rate relationships. Of equal importance is the union's abandonment of its traditional suspicion of all job evaluation techniques. More astute union leadership has come to appreciate the gains which can be secured from a jointly developed job evaluation. Indeed, judging by the results of the CWS programme in Canada, job evaluation is ceasing to be a shield by which a hard-pressed company has sometimes attempted to protect itself against wage claims for specific groups of workers, and in union hands its is becoming a sword by which to press for ever greater benefits. It is no longer management defensive but union offensive and, from a union viewpoint, it is now apparent that « if the tail of job evaluation succeeds in wagging the dog of collective bargaining, it is largely because the dog does not know how to use its tail ». 21 The CWS programme is a reflection of the growing orderliness of industrial relations whereby problem solving on a case-by-case basis is tending to give way to more

⁽²⁰⁾ Kilbourn, W., The Elements Combined: A History of the Steel Company of Canada, Toronto: Clarke & Irwin, 1960, p. 201.

⁽²¹⁾ Steel Labor, Vol. XVII, January, 1952, p. 7.

systematic overall procedures and, in its Canadian application, it is an instance of the steadily widening agenda of collective bargaining.

ÉVALUATION CONJOINTE DES TÂCHES DANS L'INDUSTRIE CANADIENNE DE L'ACIER

Les relations industrielles dans l'industrie canadienne de l'acier ont été caractérisées par un climat d'hostilité, une attitude de non-confiance et une propension à faire la grève. Toutefois, malgré ces relations difficiles, il est intéressant de voir comment une situation de conflit a pu déboucher sur une nouvelle approche dans la détermination des salaires.

L'ÉLABORATION DU C. W. S. AUX ÉTATS-UNIS.

Le système « Coopérative Wage Study » fut développé aux Etats-Unis durant la deuxième guerre mondiale par un bureau de recherche créé par un groupe de compagnies importantes de l'industrie de l'acier. Il s'agissait d'une tentative de réduire les injustices dans la fixation des salaires. Il n'existait alors aucune méthode précise de hiérarchiser les tâches, aucune coordination centralisée dans les taux de rémunération et les gages se détérioraient à la suite des innovations technologiques et des modifications dans le contenu des tâches.

A la suite d'une demande du « War Labor Board » en 1944, les travailleurs unis de l'acier acceptèrent avec les compagnies d'utiliser le système C. W. S., développé spécialement pour l'industrie.

LA SITUATION AU CANADA DURANT LA GUERRE.

A cette époque, les unions canadiennes concentraient leurs efforts à relever le salaire de base dans toute l'industrie de l'acier plutôt qu'à corriger les injustices dans les salaires individuels. Par conséquent, au début de la guerre, on donna la priorité aux demandes concernant les taux de base.*

LE C. W. S. AU CANADA.

En 1950 toutefois, les unions s'intéressèrent davantage aux résultats obtenus aux Etats-Unis avec le C. W. S. Elles acceptèrent la proposition de la compagnie Algoma de procéder à une évaluation des tâches dans les départements d'entretien et réussirent à convaincre les dirigeants de cette Compagnie que le travail devait être entrepris en collaboration et que le système C. W. S. devait être utilisé. Ce fut la première réalisation du genre au Canada.

LA PROCÉDURE UTILISÉE DANS L'ÉTABLISSEMENT DU SYSTÈME C. W. S.

La Compagnie et l'union forment chacune un comité travaillant à plein temps sur le projet. Toutefois la description et l'évaluation des tâches sont des initiatives propres à la Compagnie alors que l'union accomplit son rôle en faisant valoir ses critiques et ses commentaires.

L'EXPANSION DU C. W. S. AU CANADA.

En 1952, Algoma, Stelco et Dosco acceptèrent d'utiliser le système C. W. S. pour toutes les tâches incluses dans l'unité de négociation. Actuellement, le système est appliqué dans presque toutes les sections des industries du fer et de l'acier ainsi que dans les mines, là où les métallurgistes-unis d'Amérique négocient des contrats.

En tout, l'union a obtenu l'utilisation du système C. W. S. dans environ 80 entreprises minières ou manufactures établies à travers le Canada. Ceci représente environ 60,000 employés travaillant dans des secteurs des plus variés.

RÉACTIONS ET CONSÉQUENCES.

Au Canada, les pressions exercées pour l'adoption du système C. W. S. viennent entièrement de l'union et il n'est pas exagéré de dire qu'il fut appliqué malgré les dirigeants des entreprises. Ceci à cause de la coopération impliquée dans l'application du système et aussi à cause des coûts d'installation.

Mais une fois en marche et les résultats apparents, les compagnies furent plus favorables au système. Celui-ci contribua à une plus grande stabilité et à un meilleur contrôle de la direction sur les coûts de la main-d'oeuvre.

EVALUATION DU SYSTÈME.

- Le C. W. S. contribua surtout à établir des structures acceptables de salaire à l'intérieur desquelles le taux d'une tâche individuelle est déterminé selon les fonctions à accomplir et les exigences imposées aux travailleurs.
- * N.D.L.R. Les districts canadiens des unions internationales sont responsables de la politique des salaires au Canada. Ils peuvent tenir compte des standards de l'autre côté de la frontière comme élément de comparaison. Parfois, aussi, ils les ignorent complètement. Dans une industrie où se trouve une union aussi dynamique que celle des United Steelworkers, le CWS (Cooperative Wage Study) établi aux Etats-Unis en 1944 était rejeté au Canada et ce n'est qu'en 1950 que l'on a commencé à l'étudier et on l'a accepté en 1951 dans Algoma Steel.