

In no case shall any acquired rights or vested interests in either the pension system or the Insurance and Provident Society be affected.

18. **Grand Trunk Pacific.**—The Minister of Railways and Canals, as receiver of the G.T.P. Ry. System, may entrust to the committee of management on terms to be approved by the Governor in council, the exercise of such of his powers as Receiver as the Governor in council may deem requisite, in order that the operation and management of the G. T. Pacific System may be conducted in harmony with the operation of other railways and properties under the control of the committee, and upon the transfer to or vesting in the government of the preference and common stock as herein provided for, the Governor in council may, on such terms and conditions as may be deemed necessary in the public interest, order the discharge of the receivership of the G. T. Pacific System, and the termination and withdrawal of the proceedings in the Exchequer Court of Canada relating thereto.

19. **G.T.P. Guarantee and Claims.**—

For the purpose of the valuation provided in this agreement, the obligations of the Grand Trunk as guarantors of any indebtedness of the G. T. Pacific Co., or of the G. T. Pacific Branch Lines, or otherwise, and the claims of the government against either of the above mentioned companies, or against any company forming part of the G. T. R. System, shall not be treated as extinguished or affected by anything contained in the said act.

20. If the arbitrators consider that the market prices or quotations of the stocks are to be taken into consideration in establishing their value, they shall not take into account the fluctuation, if any, in the market prices or quotations of the said preference and common stock caused by the negotiations between the parties hereto, the passing of the said act, or the execution of this agreement. This shall not be taken to mean that the market prices or quotations are relevant matter to be inquired into by the arbitrators.

21. **Costs.**—Each of the parties to this agreement shall pay its own costs of

and in connection with the arbitration subsequent to the date of this agreement, including the remuneration of the arbitrator appointed by it. The remuneration of the third arbitrator, of the secretary of the arbitration board, secretarial, clerical, reporting, travelling and other necessary expenses which may be considered as in the common interests of both parties, shall be equally borne by each party. In order to provide the necessary funds to pay its expenses and its share of the common expenses, the directors of the Grand Trunk shall be entitled to create a fund, by means of assessments on the present debenture stocks and present guaranteed stock, in such proportions as the directors in their discretion may determine, which shall be deducted from any payments on said debenture and present guaranteed stocks as may be necessary:

Should any difference arise as to what is included in the expression "common interests of both parties", as used in this clause, such difference shall be settled by the board of arbitrators on the application of either party.

Graphic Production Control Discussed.

The paper on graphic production control, by E. T. Spidy, A.M.Am.Soc.M.E., Production Engineer, Angus Shops, C.P.R., Montreal, which was published in Canadian Railway and Marine World for February, was, after its reading, discussed by the Canadian Railway Club's members, as follows:

L. C. Ord, Assistant Works Manager, Angus shops, C.P.R. After Mr. Spidy's remarks it is possible that some of the members may think, from the amount of color on the charts, that this subject is a complicated one which requires considerable staff and considerable work. It, however, requires a very small staff to operate, as in a shop of 2,500 men the total additional staff required to handle this would not be more than four or five men, and with this, 50% increase should be obtained in the output without increasing the supervision. This method of control also looks after the movement of material, and in a shop, large or small, it is a familiar sight to see the foreman, who should be watching his men, chasing over to the stores or elsewhere, looking for material which he is short of. Under this system the chasing of material is done by one man and the foreman stops moving from shop to shop. The same condition applies where are several shops handling the same material. One fellow knows that the stores has something he wants and he goes and gets it, but with the schedule man watching, the delivery of material is checked up, and he sees that it is distributed to the shop as required. Where large quantities of material are used for new equipment the tracing position is serious, and in the case of some items it is handled in bulk. We carry considerable stock ahead and as the supply begins to run low the check is repeated every day until it is received. This system shows the number of days the shop has been out each class of material. The party concerned is supplied with a list of the outstanding material that is short and he can act on the situation. The staff required to do this is extremely small and the men who specialized on it does more work than several foremen. In any large shop, where

any special work is required in a hurry, nothing gives a quicker answer than a schedule. This schedule is not a new method. It is equivalent to putting a lazy man on the basis of a good man. The older experienced foremen planned his next day's work the day before. He knew what he had to do and did not wait until the morning to assign his men to their different work. He wrote up the list of what was to be done and told his men to do it. Various foremen had different methods. This system writes up the list for the foreman the night before and gives it to him in time to assign men to the jobs for the following day, and the men do not work one against the other. In making a chart you have a definite and uniform method and with a large staff every man knows it in time. In a shop where you put four or five men on a car or locomotive, and have some working on the wheels and some on the other parts, if the men could do all the work it would then be a simple matter to take the material as it came along, but the modern shop is gauged up to its maximum and each man specializes, and it becomes more difficult to see that each man gets off the job in time for the next man. The schedule puts that in the hands of each foreman, as it indicates whether any one shop is late repeatedly or whether it is ahead of time. In almost every shop where a job is started a different schedule is required. You do not start off and find out later where you are going to come out at. Before a foreman starts a job he has to make a definite plan of how he is going to do the work, and then he is checked up to see that he carries it out. His plan can be checked up in detail before he starts out and you know how closely he lives up to it. By checking the work and your layout you can see that distribution is controlled before the job starts and each schedule will bring better results later on. The last point is that it does ensure uniformity of output and a certainty of operation that cannot be obtained in any other way.

A. McAlpin, Angus Shops, C.P.R., Montreal. Production by schedule has been so clearly stated that, to shop-

men at any rate, questions seem hardly necessary. That is as far as the paper goes. But there is one thing not mentioned in the paper that at present time has a distinct bearing on the paper and in the future may have a still more direct bearing. These schedules have all been based on an output under a piecework system, or one might say on an accelerated labor basis. As the Canadian railways have accepted the McAdoo award and as one of the clauses of that award decrees that where the men rate a majority against piecework, it automatically shall cease to exist. I would like to know if Mr. Spidy can enlighten us as to how we are to keep up the labor pace to fulfil the requirements of the present schedule.

E. T. Spidy. You ask what would happen to the schedule if the piecework system fails. At Angus shops piecework is in force, which accelerates the output of the individual and this would, in a way, affect the schedule, but the schedule in itself is entirely independent. Should piecework be discontinued the check we get on individual operations by the piecework foremen would also be discontinued. We would still have, however, in every department, the check which is made by the production staff in each shop. Should piecework be discontinued, a certain number of the piecework staff would probably be absorbed into supervision, which would provide extra foremen to check up the work and see that it was done. My own opinion is that a shop without piecework requires a production schedule that is more extensive than one which has piecework, because that provides the only individual check on the work. Just how one is going to prevent a slow up in the output is a matter the supervisors will have to handle, but if you provide the supervisor with a list of work required each day, he has something definite to work to, and the management has a definite check every day, it can be readily seen when he is falling down and where. The schedule will tell you exactly how your shop is being run, which will give the necessary stimulus to get the output.

W. Blackbird, Contract Inspector, G.