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AN EXPERIMENT WITH
SUPERVISORY TRAINING

BY

JOHN D. HANDYSIDE

PUBLISHED IN LONDON BY THE
NATIONAL INSTITUTE OF INDUSTRIAL PSYCHOLOGY
14, WELBECK STREET, W.1

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AN EXPERIMENT WITH
SUPERVISORY TRAINING

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FOREWORD

THIS study set out to measure, as directly as possible, the effects of introducing a supervisory training scheme in a firm where no previous systematic approach had been made to supervisory training.

Despite the very marked increase in the number and variety of courses for supervisors that has taken place in Great Britain since 1945, there is still little factual evidence that these courses achieve the results they are intended to achieve. The absence of such evidence is not, by any means, entirely due to reluctance on the part of those conducting the courses to put their efforts to the test: it is due rather to the extreme difficulty of actually testing the effects of the training.

In fact, this difficulty stems from the common failure to define the aims of courses *in operational terms*. Scientifically little can be done to test such diffuse and general intentions as "We try to make them better supervisors" or "We hope to improve their attitudes", unless the methods by which to measure 'better supervision' or 'improved attitude' are rigorously defined. In part too, the difficulty is associated with the recognition that supervisory training by itself is likely to have only a limited influence, and that deliberately to attempt to isolate the effects of training only, by leaving untouched such other factors as the selection and status of the supervisors, is to take a narrowly academic and unpractical view of the realities of industry. Again, there is the problem of knowing when to expect the results of training to be most apparent. Some short courses are admittedly expected to have an immediate stimulating effect, but one which is likely to be quite transitory. Other longer courses are intended to have an educational character, they are not so much expected to produce immediate returns as to have a long term value facilitating self development.

Although aware of the difficulties inherent in attempting to evaluate supervisory training, the N.I.I.P. Foremanship Research Group decided in 1951 that the issues involved were sufficiently important to industry to justify a substantial effort to provide at least tentative evidence about the worthwhileness of what was rapidly becoming a widespread personnel practice.

In consequence a search was made for a number of factories which met the following requirements :

- (i) they had made no previous systematic approach to supervisory training;
- (ii) they were engaged in the manufacture of articles which would permit a reasonably unequivocal method of measuring productivity;
- (iii) they already had, or were willing and able to develop adequate personnel records;
- (iv) they were so organised that it would be possible to use one part of them as a control and one part as an experimental group;
- (v) they were interested in the problem and prepared to offer facilities for the experiments.

After a prolonged search four such factories were found. One was in the clothing industry, two were in electrical industries, and the fourth manufactured household cleaning materials. Four experiments were then set in train. In each case a supervisory training scheme was introduced in accordance with what was believed, on the basis of the limited direct evidence and from general psychological principles, to be the 'best' practice.

It was not long, however, before three of these experiments had to be deferred or abandoned. The clothing factory suffered in a general recession of trade which greatly restricted its intended production programme. One of the electrical firms had its production schedule radically disrupted by an unprecedented rise in the price of a basic raw material, which entailed the search for modification of its product. In the other electrical firm an unanticipated management vacancy resulted in the manager of the experimental group being put in charge of the control group. Only in the cleaning material factory was it possible to maintain the experiment in the absence of significant external changes. Even in this case, however, it was necessary to terminate the main experimental period after only nine months, when the management indicated that it was likely that external events were liable to have a substantial influence on its production and personnel policies. In fact, these events did not arise for a further three months, so some of the measures developed for the experiment were continued for a whole year.

The report which follows is a description of the experiment in this factory. The foregoing is intended to indicate that the research workers were clearly aware of the danger of generalizing from a single instance, and endeavoured to obtain a larger sample of experiments; in this, however, they were defeated by the unpredictable. Fortunately there have appeared since this experimental programme was initiated at least two important publications* dealing with the same problems, with findings broadly similar to those reported here. The results of this experiment therefore do not stand entirely alone, but it is still clearly desirable that similar experiments be conducted to test the results of supervisory training wherever conditions can be moulded to make this possible.

It remains for the experimenter to thank the many people who assisted him in this research. The managers and supervisors who bore the main brunt of the experimental changes must necessarily remain anonymous, but their willing help in what was sometimes a frustrating experience for them deserves genuine tribute. Thanks are also due to the many operatives who completed lengthy questionnaires to give their views.

The cost of the investigation was met from funds provided by the Medical Research Council.

* " 'Leadership Climate' and Supervisory Behaviour—a Study of the Leadership Role of the Foreman in an Industrial Situation " by Edwin A. Fleishman, Personnel Research Board, The Ohio State University, Columbus, Ohio, 1951 ;

and

" Conditions influencing the effects of training foremen in human relations principles " by T. Hariton. Doctorate dissertation. University of Michigan, 1951.

AN EXPERIMENT WITH SUPERVISORY TRAINING

This study set out to measure as directly as possible the effects of introducing a supervisory training scheme in a firm where no previous

systematic approach had been made to supervisory training.

THE FIRM

The firm offering the facilities for the experiment is situated in the London area. It produces a relatively limited range of domestic cleaning materials, and employs some 1,250 people. It was particularly suitable for the experiment as it was possible to treat one large production de-

partment employing some 400 operatives as the experimental group and to use a composite of three departments as the control, to provide a group not dissimilar in the proportion of various levels of skill of jobs, working environment and rates of pay.

LAUNCHING THE EXPERIMENT

After discussions with senior executives it was agreed that an experiment might be possible and a small committee was set up to draw up detailed proposals. This committee included representatives of all levels from directors to supervisors in the department chosen for the experiment. Agreement was reached that an experiment should be initiated and that records of productivity, labour turnover, absence, etc., should be maintained for the experimental department as well as for any other department which might provide a control group. One of the senior managers, however, said that he would not be satisfied with these measures, which he did not think would be likely to be noticeably affected. He was concerned to get a measure of the morale and job satisfaction of the operatives, as he felt there was room for improvement, believing that morale was not as good as it had been before the War.

The remainder of the committee supported the idea of attempting a direct measure of operative satisfaction and possible methods were reviewed. It was agreed that an interview approach would be too time-consuming for the purpose, and it was decided to try a questionnaire. Two alternative job satisfaction questionnaires were produced for consideration by the committee—one based on the Thurstone Attitude Scale technique ("An Index of Job

Satisfaction" by A. H. Brayfield and H. F. Rothe, *J. App. Psych.*, Vol. 35, No. 5, Oct., 1951), the other derived very closely from that used by Hoppock ("*Job Satisfaction.*" R. Hoppock. Harper Bros., London and New York, 1935)—the latter was agreed to be much the more interesting from the point of view of the respondent, and after a number of minor modifications of wording was accepted for use in a survey to cover the whole organisation. Some concern was, however, expressed by various members of the committee that the circulation of a questionnaire of this type would cause operatives to think up grievances of which they had previously been happily unaware. This suspicion of the danger of the questionnaire approach was never entirely stilled.

The committee discussed the form which the supervisory training programme was to take. On the advice of the writer, it was agreed that the programme would consist mainly of meetings at which groups of supervisors and managers would be encouraged to discuss the problems that they felt were important. It was agreed that every effort should be made to ensure that these meetings should be devoted to discussion of items asked for by the supervisors themselves—thus emphasis was to be laid from the outset on their full participation. It was intended, too, that every effort should be made to get the

meetings running in such a way that they were led by supervisors rather than by managers. This was regarded as part and parcel of the training itself—the supervisors were to become conference group leaders as a means towards developing skill in handling people.

It was decided that the opening meeting would consist of a short talk by the Works Manager on "The Organisation of the Firm"—this would, it was hoped, provide an opportunity for the supervisors to discuss the work of various sections and to indicate which topics they would like to consider in greater detail at subsequent meetings. Tentative arrangements were made that the head of the Production Planning Department, the Personnel Officer, the Sales Director and the Workers' Chairman of the Works Council should be prepared to attend the

discussion groups fairly early in the programme, should discussion of their functions be asked for by the supervisors—a certain amount of preparation was thus possible.

It was decided that the 40 supervisors in the department should be divided into four groups, each group consisting of both men and women at each of the various levels from chargehand to senior foreman. The groups were to meet once a week for an hour and a quarter. The first week one group only would meet—the second week two would meet, and so on. This would permit the system of meetings to be built up without demanding the attendance of particular specialists—such as the Production Planning Manager—more than twice a week as a maximum.

INFORMING THE WORKS COUNCIL

When agreement had been reached by the committee on the general form of the training programme, it was suggested by the Chairman of the Company that the investigator should explain the proposed experiment to the Works Council, and, at the same time, ask for the consent of the Council to the survey by means of the questionnaire. This was done during one of the normal Council meetings. The councillors showed considerable interest in the proposals and accepted the idea of the questionnaire survey with some enthusiasm. The investigator asked them to emphasise to operatives that the replies would be treated as confidential and that no completed forms would be seen by manage-

ment—the findings would be reported to management in such a way that individuals could not be identified. The Chairman of the Company stressed that he was most anxious that confidence should be respected and that in no circumstances would he permit any breach of it.

It was pointed out, too, that the results of the survey could not be published until a considerable period had elapsed. This was necessary to ensure that any change in productivity, etc., which might occur in the experimental department should not be a consequence of action taken on the basis of the findings of the attitude survey.

THE FIRST ATTITUDE SURVEY

Three days after this Works Council meeting the attitude survey was launched. A one-minute talk over the internal broadcast system was made during the morning tea-break, and immediately afterwards the investigator and three colleagues went round the various departments of the factory and the offices giving out copies of the questionnaire, which consisted of two

cyclostyled foolscap sheets. (This questionnaire is given in full at Appendix I.) Additional copies were left at the Time Offices so that individuals who had been missed could collect them. Reply-paid envelopes were left with the few operatives who said they would not be at work the following day when the forms were to be collected. A second distribution was carried out

in the same way in the afternoon in order to cover part-time employees who worked only in the afternoon.

The following day the forms were collected by the four members of the N.I.I.P. staff who had distributed them. Again two rounds were made—in the morning and in the afternoon. A supply of reply-paid envelopes was left at the Time Offices for the use of operatives who had "left their forms at home" or "not filled them up yet". The additional return achieved by this means was a very small proportion of the total.

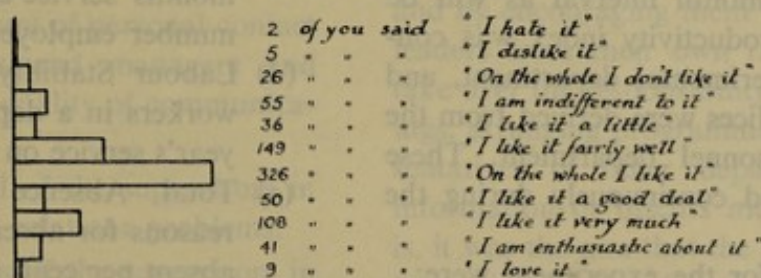
The analysis of the questionnaires was started

immediately and the distributions of job satisfaction ratings (scales 7 and 8 of the questionnaire) were calculated for the whole firm and posters were produced showing the number of people who checked each grade of job satisfaction. The proportion of people employed in the firm who returned questionnaires was also given. This permitted individuals to see how they compared with their fellow workers in their satisfaction with their jobs. These posters were displayed a fortnight after the forms had been issued.

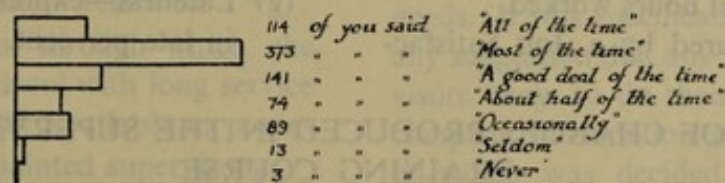
National Institute of Industrial Psychology

THIS IS WHAT YOU SAID :-

(1) *Considering your job as a whole :-*



(2) *The amount of the time you felt satisfied with your jobs :-*



(3) *61% of the men, & 65% of the women returned completed forms*

*The information you provided has been most valuable
~ thank you very much for your co-operation.*

John D. Handyside
INDUSTRIAL PSYCHOLOGIST

Apart from this no further information from the survey was fed back to operative grades for nine months. The reports on the survey of each

department were written during the next six months, but were not reported to anyone except the Works Manager and the Chairman of the

Board, who had agreed to take no action except on minor points until the experimental period was completed. The only action taken, in fact, was limited to one of the control departments, where a leaking roof which had not been reported through the normal channels was repaired and a misunderstanding about a piece-rate was clarified. (Action was taken in the case of the offices (a) to eliminate the practice of clocking on, and (b) to amend the hours of work. Although these points had been criticised by employees in the first survey, the alterations were not, in fact, a result of the surveys but were

of independent origin. The offices were in any case excluded from the control groups.)

Thus it can be stated with considerable confidence that any improvement in morale or productivity arising only from the fact that an attitude survey had been conducted should have affected the experimental and control departments equally—and that as no action—with the two minor exceptions noted above—was taken on the basis of the information produced by the survey, the effects of conducting the survey were limited as far as possible.

THE MEASURES OF CHANGES IN THE FACTORY ARISING DURING THE EXPERIMENTAL PERIOD

In addition to the attitude survey, which was used as a measure of morale in both experimental and control departments, and was repeated after a nine-month interval as will be explained later, a productivity index was constructed for the experimental department, and various personnel indices were derived from the records of the personnel department. These indices were recorded continuously during the experimental period.

The indices used for the experiment were:

- (a) Productivity—a measure of the total output of the experimental department divided by the total hours worked.
- (b) Morale—as measured by a Job Satisfac-

tion questionnaire.

- (c) Peripheral Labour Turnover—i.e., the number of leavers with less than nine months' service as a percentage of the total number employed.
- (d) Labour Stability—i.e., the proportion of workers in a department with at least one year's service on any given date.
- (e) Total Absence Rates—irrespective of reasons for absence, expressed as workers absent per cent. per day.
- (f) Voluntary Absenteeism—as measured by the 'Blue Monday Index'.
- (g) Lateness—expressed as workers clocking in late per cent. per day.

MEASURES OF CHANGES PRODUCED IN THE SUPERVISORS BY THE TRAINING COURSE

In addition to the measures of direct change in the factory itself, three measures were taken on the supervisors taking part in the experiment. These were:

- (i) Two attitude scales which had been developed to measure "constructive, tolerant and co-operative attitudes to problems of human relationships" were administered to the supervisors in the experimental group, one at the start of the training course, and the other about three months later. It was

not necessary to administer these scales to supervisors in the control group, as adequate control data had been accumulated from previous experiments. (See Appendix II for the scales used, and see "The Evaluation of Human Relations Training for Supervisors" by Peter F. C. Castle, *Occupational Psychology*, October, 1952, for details of the development of these scales.)

- (ii) An opinion quiz on which supervisors were asked to indicate their feelings about taking

part in a training scheme—the amount they felt they knew about the Company, and the amount they felt they needed to know in order to do their jobs with full efficiency. This was administered at the beginning of the course and again a year later. (Appendix III.)

- (iii) Thirty-two of the supervisors who took part in the experiment were interviewed indi-

dually a year after its start and their views on the interest and value of the training were elicited during a confidential discussion with the investigator. (Five women chargehands asked to be excused from attending for interview. Reasons for this refusal were not asked.) (The form used for the structured part of these interviews is given at Appendix IV.)

THE OBJECTIVES AND METHODS OF THE TRAINING PROGRAMME

The training programme had the following objectives:

- (a) To increase the supervisors' knowledge of the organisation of the firm and the work of departments other than their own.
- (b) Arising from (a) above, to increase the amount of intelligent co-operation with other departments.
- (c) To increase the amount of personal contact between supervisors and managers and thus to improve the quality of communication between them.
- (d) To increase the skill of the supervisors in dealing with human relations problems.
- (e) To alter the attitudes of the supervisors in the direction of increasing their agreement with the attitudes "approved by 'experts' giving training in human relations".
- (f) To develop a system through which the experience of supervisors with long service could be made readily available to potential and recently appointed supervisors.
- (g) To impart skills in 'conference leading', self-expression, and ability to communicate clearly by verbal (non-written) means.

- (h) By improvement of the supervisors' skills, etc., as enumerated above, to raise morale, satisfaction and productivity in the experimental department.

A basic intention in the whole procedure was that the training programme was to be organised in such a way that the supervisors themselves selected the topics they wished to discuss, and by encouraging them to appoint conference leaders from their own ranks, to get them to take over the responsibility of running the meetings, arranging programmes, and inviting representatives of other departments to provide information or discuss mutual problems. That is, it was the aim that the programme would be 'non-directive', and that the trainees would be responsible for seeing that the meetings were relevant to what they themselves felt to be their needs. It was specifically the intention to avoid any suggestion that anyone was telling the supervisors "how to do their jobs" or "laying on a company information programme" the content of which was decided in advance by senior management. Moreover, attendance at the meetings was to be entirely voluntary—only one supervisor, however, chose not to attend at all.

THE CONTENT OF THE DISCUSSION SESSIONS

As has been said, there were four separate groups of ten or eleven supervisors each, which each met once a week for an hour and a quarter, in the afternoon during normal working hours. Each group started meeting one week after its

predecessor so that no two groups had had the same number of meetings at any given date until the end of the programme. The topics for the first fourteen weeks of the programme were as follows:

GROUP A	GROUP B	GROUP C	GROUP D
(1) The structure of the firm			
(2) The Planning Department	(1) The structure of the firm		
(3) The Personnel Department	(2) The Planning Department	(1) The structure of the firm	
(4) The Engineers	(3) The Inspection Department	(2) The Planning Department	(1) The structure of the firm
(5) The Inspection Department	(4) The Personnel Department	(3) The Inspection Department	(2) The Planning Department
(6) "Selection and Training"	(5) "Training"	(4) "Training"	(3) The Inspection Department
(7) The Communications System in the Experimental Department	(6) The Communications System in the Experimental Department	(5) "Motivation"	(4) The Personnel Department
(8) "Motivation"	(7) "Motivation"	(6) Personnel Dept. and "Human Relations"	(5) The Planning Department (continued)
(9) Role-playing	(8) Case-studies from the Personnel Department	(7) The Communications System in the Experimental Department	(6) "Training"
(10) The Firm's Promotion Policy	(9) Role Playing	(8) Role Playing	(7) The Communications System in the Experimental Department
(11) The Firm's Promotion Policy (continued)	(10) The Firm's Promotion Policy	(9) "The Work of an Industrial Psychologist"	(8) The Engineers
(12) Role Playing	(11) The Firm's Promotion Policy (continued)	(10) Role Playing	(9) Role Playing
(13) Role Playing	(12) Role Playing	(11) Role Playing	(10) Role Playing
(14) I.W.S. Film Strip Case Studies	(13) I.W.S. Film Strip Case Studies	(12) I.W.S. Film Strip Case Studies	(11) I.W.S. Film Strip Case Studies

Later meetings included amongst other topics, The Buying Department, The Advertising Department, Costing, The Work of the Laboratories, Methods Study, etc., as well as further discussions on topics such as the Firm's Promotion Policy, Training, Selection, etc., which had already been touched on earlier in the programme.

It will be seen that the topics chosen by the different groups were very similar. This is in part accounted for by the fact that a diary sheet was issued to each supervisor on which the topics selected by his or her own group were entered and they were told of topics selected by the other groups. Some of the later groups thus tended to select items which they were told had already been discussed by their predecessors. A more important reason for the similarity of the programmes of the different groups, however, was the very considerable lack of spontaneous suggestions from the supervisors as to topics they wanted. This resulted in senior management having to 'feed' lists of suggestions to the groups, thus defeating to some extent the original intention of spontaneity, in order to keep the groups going.

After the 14th meeting of Group A (i.e., the same week as the 11th meeting of Group D), the investigator withdrew from active participation in the programme, which it was thought would be then sufficiently well founded for it to be run by the groups themselves with the assistance of the firm's managers.

The majority of the sessions in the first fourteen weeks were conducted by managers. In the early stages the investigator acted as 'conference leader' until such time as the supervisors had got used to the idea, and then volunteers were asked to take over these duties. In many cases the supervisors were reluctant to take the role of conference leader, and managers—particularly the Manager of the Experimental Department, the Planning Manager, the Assistant Works Manager and the Personnel Manager—undertook the job of 'conference leader'. After some weeks, however, a sterner effort was made

to get the groups to appoint their own conference leaders and this was moderately successful. It remained the case, however, that the survival of the programme was almost entirely dependent on activity by managers.

After the withdrawal of the investigator from participation in the groups, the opportunity was taken by the managers involved in the meetings to gather opinions on the scheme up to that point. Four points emerged:

- (a) The supervisors felt that the subject matter of the talks had little to do with the members of the groups, although they had been interesting.
- (b) The members of the groups lacked clear knowledge of what their responsibilities in the discussion meetings were.
- (c) The members of the groups had been learning, without realising the fact (i.e., the attempt to avoid any suggestion of 'telling them how to do their jobs' had been successful).
- (d) The withdrawal of the investigator had not led to increased freedom of discussion: he had been freely accepted after the first few meetings.

Point (a) showed the difficulty of getting the supervisors themselves to develop a programme which they regard as relevant to their own problems—and, on the face of it, it would appear that the experiment had been notably unsuccessful in achieving its basic aim of arriving at a 'need-oriented' programme by the use of a non-directive approach. This belief is supported by evidence from the confidential interviews with the supervisors which took place a year after the introduction of the groups, and by the evidence from 'Opinion Quiz' forms which revealed that although the supervisors felt quite strongly that they had learned a good deal about the firm, they felt, at the same time, that much of this information was of little use to them in the course of their normal work.

Point (b) indicated the failure of the investigator to provide adequate explanation of the idea of 'conference leading', despite the fact that

the firm had provided a copy of the N.I.I.P. paper on Conference Leading for the use of each member of the groups. It must be admitted that the objective of developing a reasonable number of skilled conference leaders from the supervisors in the experimental group was

LEVEL OF INTEREST DURING THE MEETINGS

The investigator wrote a summary of each meeting he attended either in the evening of the same day or on the morning of the following day. (On three occasions he took the opportunity to have a colleague from the Institute attend with him and to write an independent summary. The level of agreement between these documents was strikingly high). Some extracts from summaries of the meetings indicate the investigator's view of the level of interest achieved; it will be clear that the quality of the meetings varied considerably:—

(Second meeting of group): "This was a very good meeting, discussion was lively and friendly and they all went away as pleased as punch".

(Fourth meeting of group): "The group finished on time in a very cordial atmosphere, it having been a very lively meeting, though not entirely about the subject it was intended should be discussed".

(Third meeting of group): "Mr. K gave his talk—he has a dreary delivery, the room was hot and Mr. M fell asleep, Miss N. had the greatest difficulty in keeping awake, and P was having similar difficulties. The discussion afterwards, however, was pretty lively and kept everyone awake".

(Third meeting of group): "It was quiet and friendly meeting and although I don't think we got through very much material they seemed quite happy".

(Fourth meeting of group): "It was a successful meeting and the Personnel Department got a good deal more support than last time. X, as always, has a rather objectionably self-righteous manner, but I think he is beginning to see other people's points of view".

not realised. Only about two of the male supervisors—one of whom had had considerable experience as Chairman of a local committee—did in fact show an acceptably high level of performance, and none of the women supervisors showed herself at all at ease in the role.

(Fourth meeting of group): "The discussion was not particularly lively, but it kept going reasonably well. There was some difficulty about getting examples from the group, they tended to quote cases that had occurred a very long time ago, and processes that were no longer used. Moreover, it was difficult for me to recognise that they were doing this".

(Fifth meeting of group): "I came away from this meeting profoundly discouraged".

(Sixth meeting of group): "The meeting was very good, plenty of material for discussion".

(Seventh meeting of group): "The atmosphere was friendly but rather purposeless. I feel this was a case where the Group Leaders lacked the capacity to pin the discussion to basic issues".

(Eighth meeting of group): "Overall I feel this was a bad meeting—the loudmouths spent so much time muddling issues that the more sensible people would be irritated and feel that it had been a waste of time. If we have many more sessions like this I feel we will certainly make relations a good deal worse because the quiet and sensible people will despise the stupidity and muddleheadedness of some of their colleagues".

(Eleventh meeting of group): "When the meeting ended I felt that we had, at long last, got a reactionary attitude out in the open".

(Tenth meeting of group): "Although the discussion was lively and the group interested, nothing very marked in the way of results was achieved".

(Ninth meeting of group): "Role Playing. The group reacted favourably to the ses-

sion and found it interesting. It was decided to continue with this next week".

(Twelfth meeting of group): "Role Playing. I came away tired and depressed from this meeting—the only thing that seems to have happened is that the reactionary attitudes of the people have at least come out into the open".

(Eleventh meeting of group): "Although progress was slow and difficult at this meeting, I think it was perceptible. Last week it seemed to me that they talked a lot without seriously considering their accustomed views, but this week they were rather less complacent".

It was at this point that the investigator withdrew from active participation in the meetings, which were now left in the hands of the firm's managers, it having originally been hoped that the supervisors themselves would have been prepared to accept responsibility for the programme after the 'running-in' period of three months.

It will be seen that a fair measure of interest and liveliness was maintained during the meetings which took place in the first three months

of the programme—there were, however, exceptions and there was a tendency for the later meetings to be less stimulating than the earlier ones.

During interviews with the supervisors and managers concerned, a year after the programme started, the question "Did you find the meetings interesting?", produced the following distribution of replies:—

	Men Supervisors	Women Supervisors	Managers
Very interesting	4	2	2
Quite interesting	7	3	0
Fairly interesting	3	7	1
Not really interesting	0	0	0
Some were interesting— some weren't	1	3	0
They were dull	2	0	0

These distributions suggest, when allowance is made for natural politeness to the interviewer, who had been closely concerned in running the earlier meetings, that the supervisors on the whole were not particularly impressed by the level of interest of the meetings, when they considered them in retrospect.

THE RESULTS

(i) PRODUCTIVITY

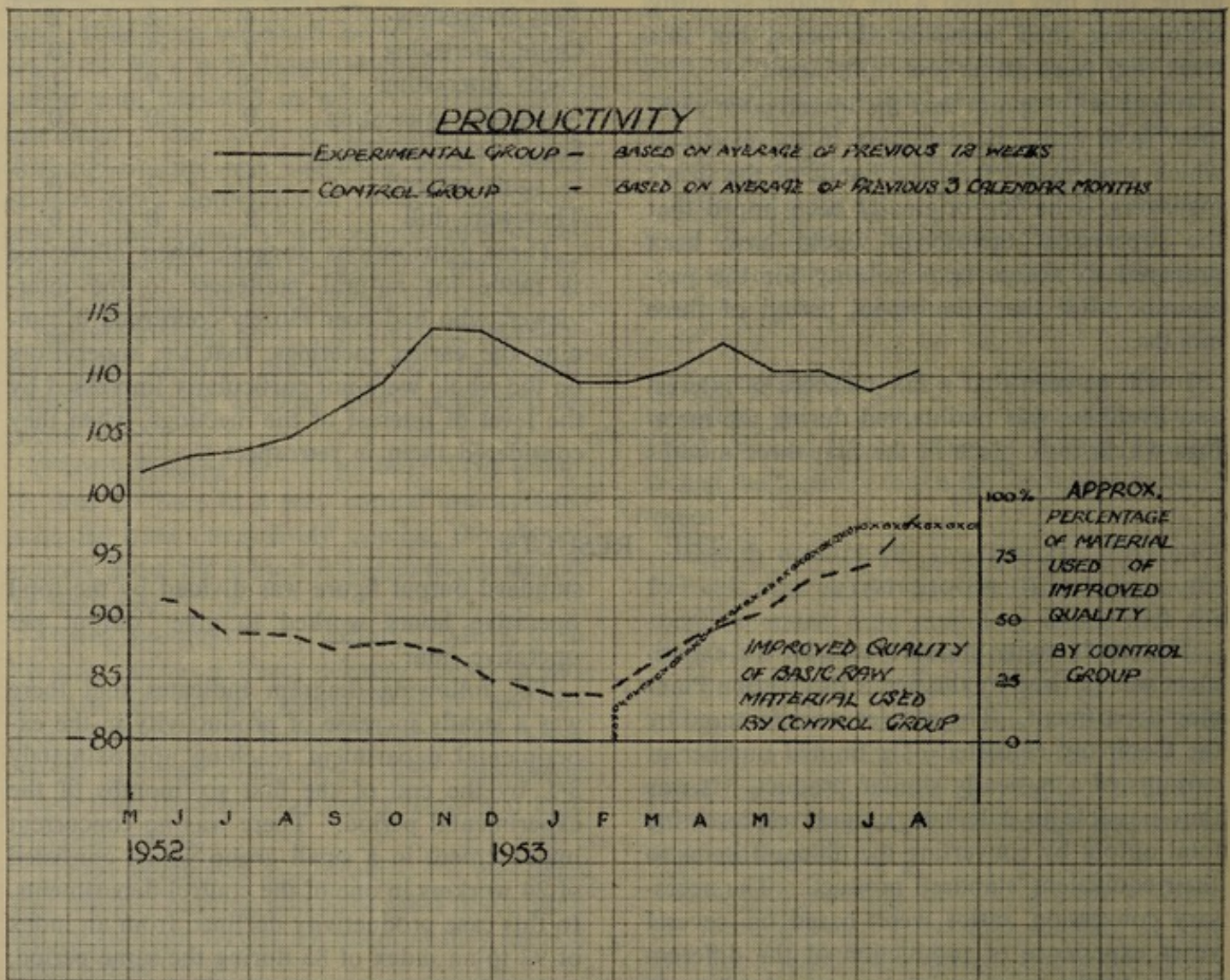
The productivity measure used for the experiment was devised by the firm's Production Planning department. The articles manufactured by the Company consisted of a limited number of variants of a basically similar product. It was thus possible to calculate a figure representing total output by converting the different items to their equivalent 'standard product'. The necessary conversion ratios were based on several years experience of production of the different items. As the 'product mix' remained relatively constant during the experimental period any minor inaccuracies in the formulae for conversions can be expected to cancel themselves out over the period, and consequently the 'standard output' figure can be accepted as a reliable index. To arrive at the productivity index the

standard output figure was divided by the total operative hours worked to give 'output per operative hour'.

The following diagram indicates that there was a steady increase of productivity in the experimental department reaching approximately 8% by the end of the first six months of the experimental period. There was no concurrent improvement in a small group which consisted of 24 workers in one of the control departments. In this case productivity declined from an index of 92 to an index of 85 during the same period, and did not rise again until the basic raw material available for use by the control group improved, when productivity rose in direct proportion to the proportion of improved raw material used. It is unfortunate that the control group for the productivity index was so small—but this was unavoidable.

It should be noted that no claim is made that the increase of productivity was directly due to the supervisory training programme. There were too many possible contributory factors to permit any definite statement about the cause of the improvement—the best that can be said is that the supervisory training scheme—which necessitated the absence of about a quarter of the department's supervisors for about an hour and a half on four afternoons of each week—

did not prevent an increase of productivity of a significant size. The figures on which the productivity index was based were computed by the production planning section of the firm, which accepted responsibility for their accuracy, and which was unable to discover any explanation of the improvement such as improved materials supply, the introduction of new machinery, alterations in bonus systems, increase in number of 'long runs' of single items, etc.



(ii) LABOUR TURNOVER AND LABOUR STABILITY

The following diagrams show the trends of labour turnover for the women employed in the

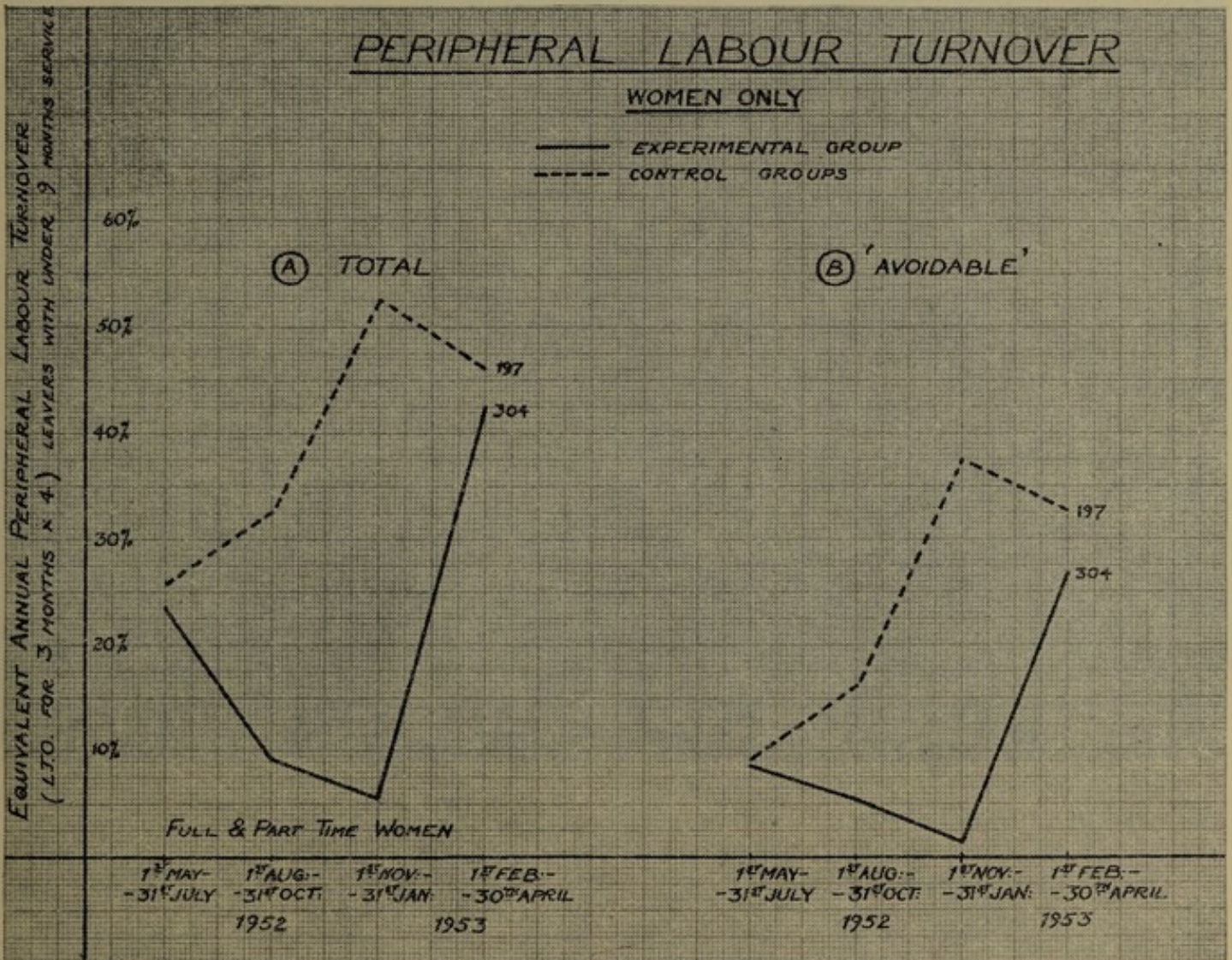
experimental and control groups. The average number of women in the experimental group during the year, starting at the time of the introduction of the supervisory training programme, was 304, the average number of women

in the control groups during the same period was 197.

The figures for total labour turnover are not available, but the diagrams show the peripheral labour turnover rates, that is the number of leavers in a given period, who have less than nine months' service with the firm, as a percentage of the total number of women employed. It will be seen that the trend of total peripheral turnover, (A) in the diagram, is almost identical with (B), the trend for 'avoidable' peripheral

turnover, i.e. leavers, with less than nine months service with the firm, giving as reasons for leaving such things as "dissatisfied"—"to better themselves" or "work nearer home"—and excluding those giving as reasons for leaving such things as "pregnancy", "ill-health", "family responsibilities", etc.

The choice of the figure of total peripheral turnover as an index seems thus to be vindicated, as it obviates problems of the validity of 'reasons for leaving' given at exit interviews.

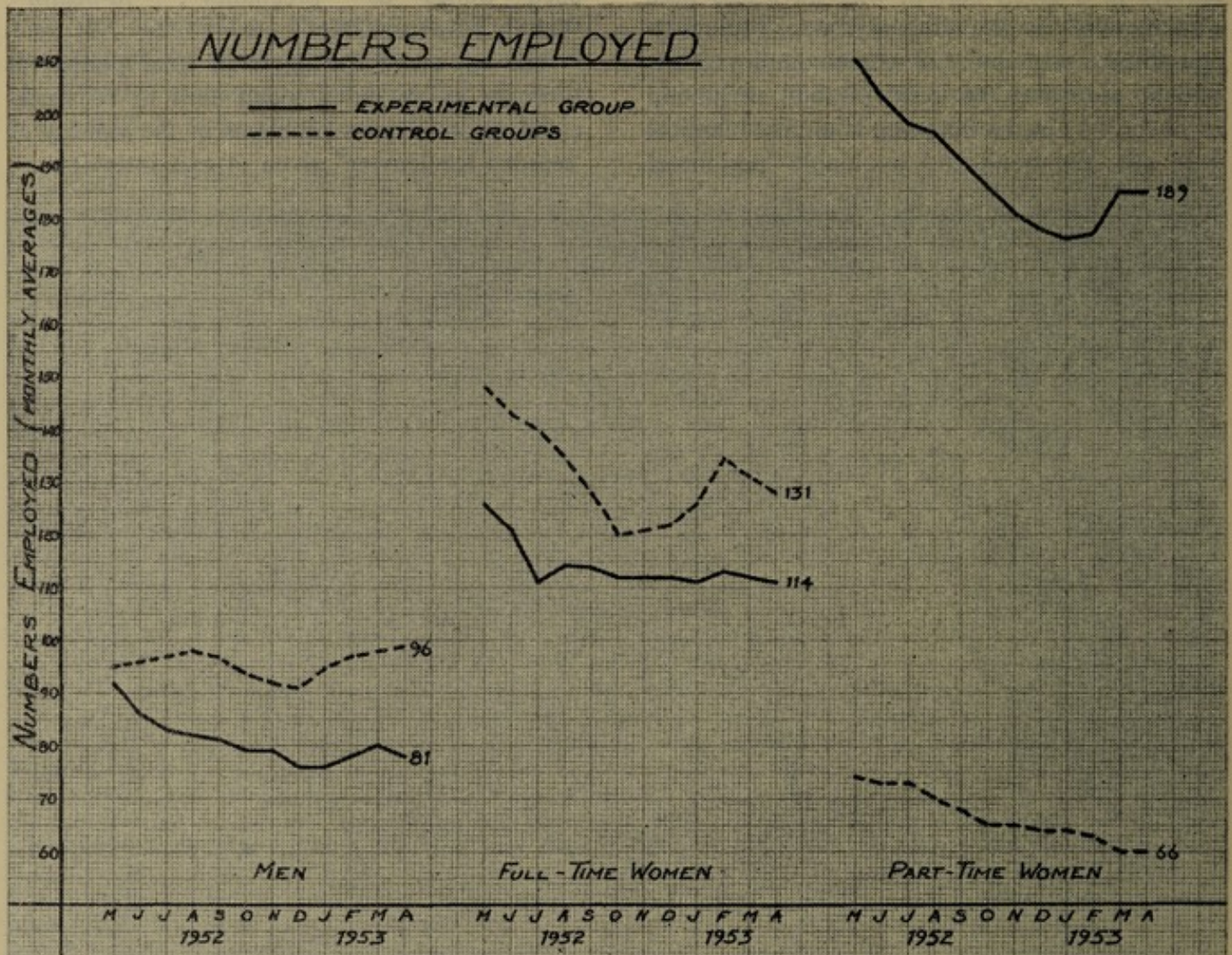


It will be seen that the turnover rates in the control and experimental groups tended in quite opposite directions during the first nine months of the experimental period. In the final quarter, however, the two groups returned to almost

identical rates of turnover. Thus even if the improvement in the experimental group was caused by the supervisory training scheme it was not maintained.

The changes do not appear to be due to alterations in the numbers employed as the trends

here are very similar for both experimental and control groups:—

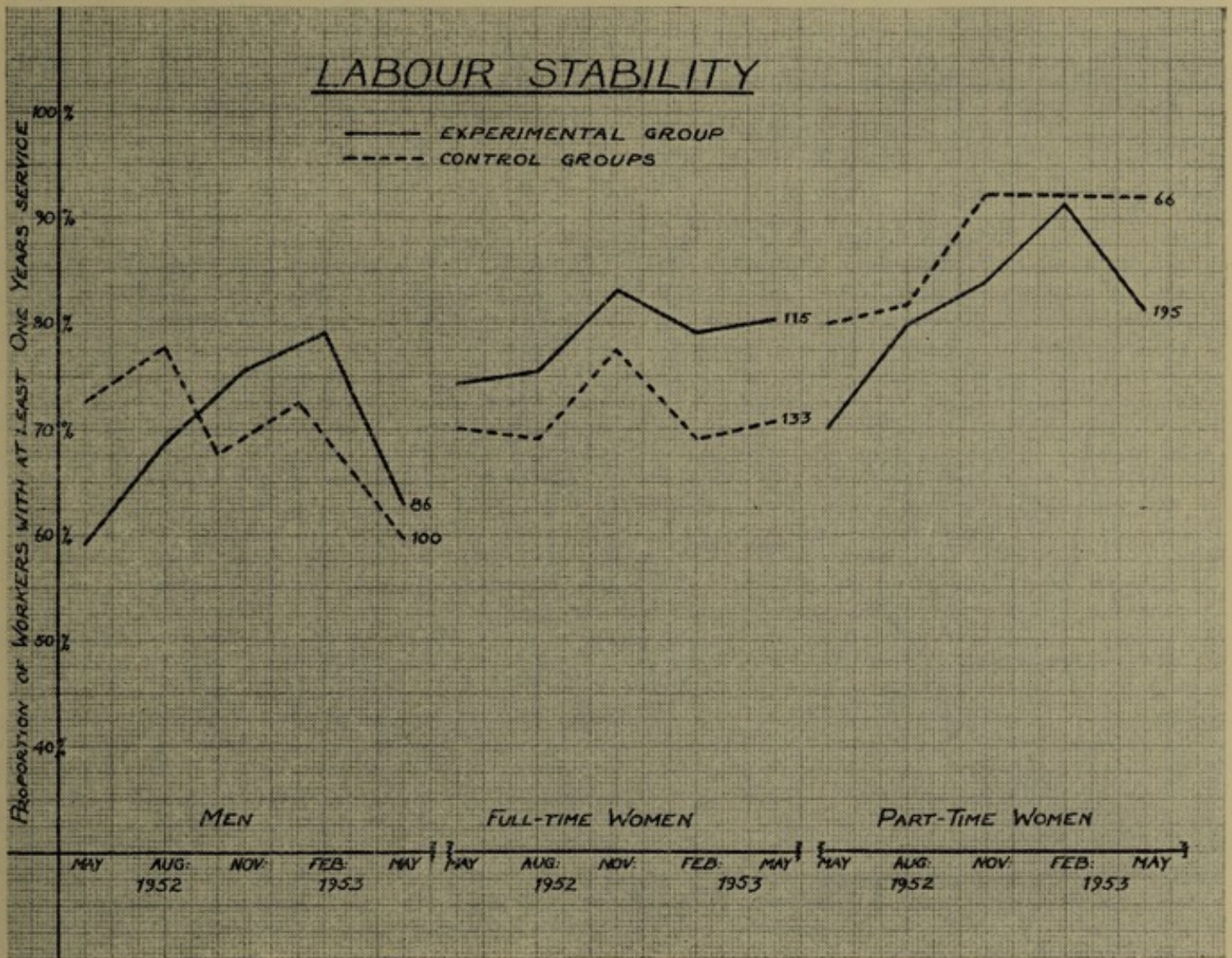


The figures for labour stability—that is the proportion of employees on any given date who were working for the firm on the same date one year previously—also show no significant difference between the experimental and control

groups. The men in the experimental group did improve slightly in comparison with the men in the control groups but the difference is not statistically significant.

By and large then, there is no clear evidence that objective indices of labour stability or turn-

over rates were significantly affected by the experiment.



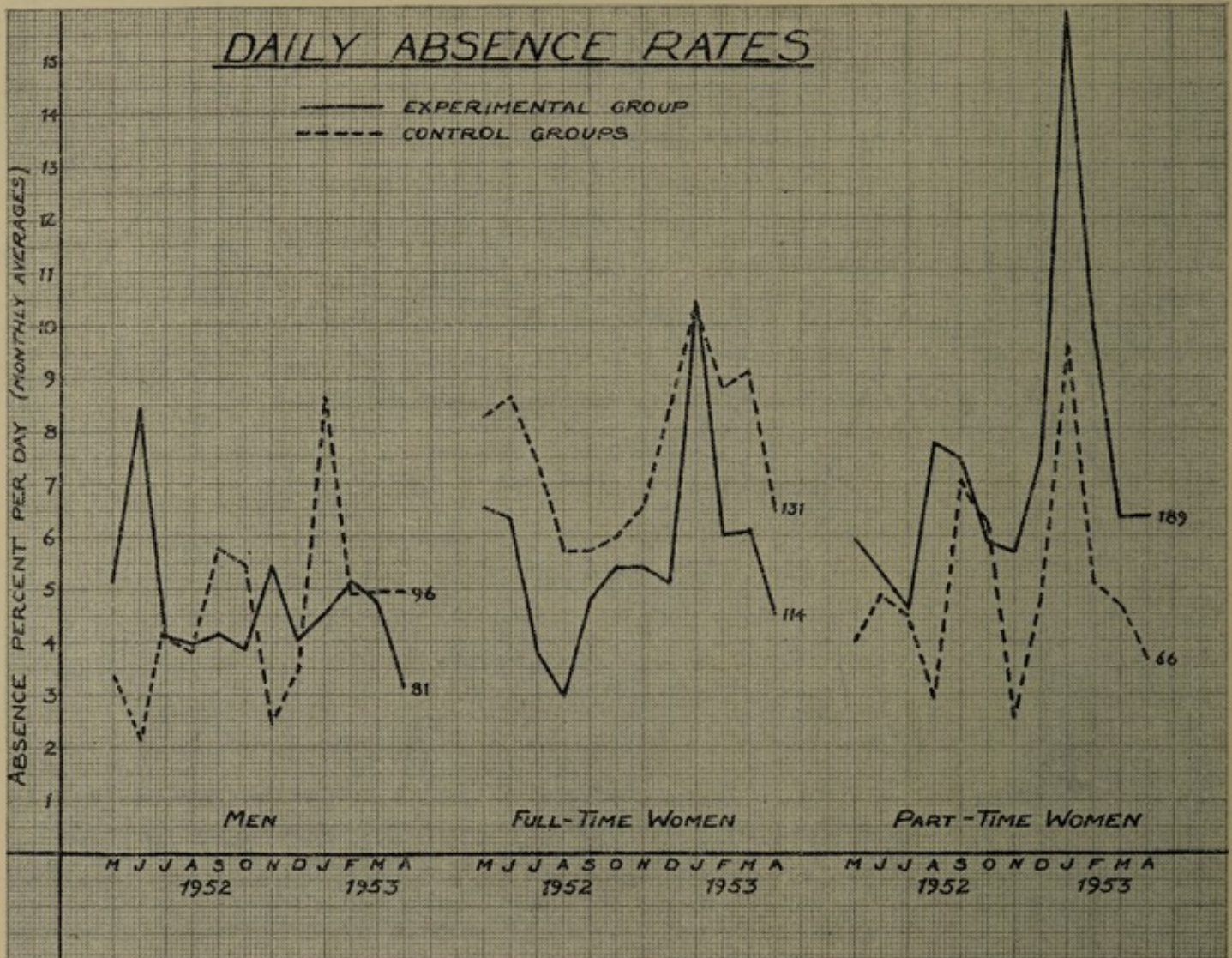
(iii) ABSENCE, ABSENTEEISM, AND LATENESS

The fluctuations in the monthly averages of absences per hundred workers per day were large in comparison with the differences between

the control and experimental groups. The average daily absence rate (for all reasons) for the firm was fairly low—about 5% for men and 6% for women—and there was thus little scope for improvement due to experimental changes.

It remains the case that the figures for absence show no marked trends which could be considered likely to be associated with the experi-

ment. There is thus no reason to suppose that the supervisors' discussion meetings influenced the daily absence rates.

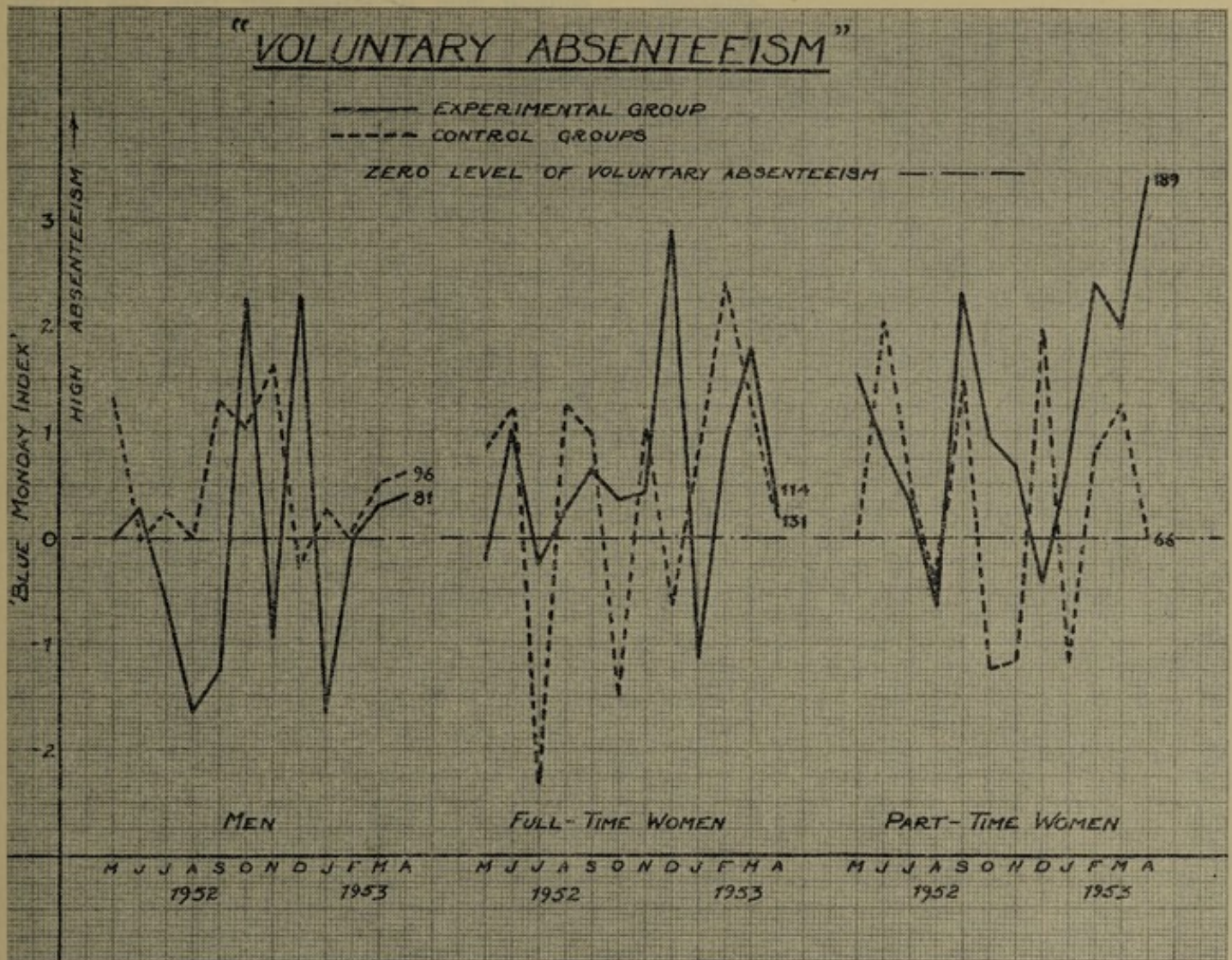


The 'Blue Monday Index' (see "Absence under Full Employment", H. Behrend, University of Birmingham Monograph, 1951) was calculated as a measure of voluntary absenteeism, for both experimental and control groups. This index makes use of the difference between the absence rates on Mondays and on Fridays. It has been found that there are often substantial differences between these rates, and as it can

reasonably be assumed, when a sufficient length of time and a large enough sample of workers are considered, that genuine reasons for absence are as likely to occur on a Friday as on a Monday, the excess of absence on Mondays in comparison with Fridays may be taken as a measure of 'voluntary absenteeism'. The index is calculated as:—

$$\text{'Blue Monday Index'} = \frac{\text{Total Monday absence} - \text{Total Friday absences, for N weeks}}{\text{Average number employed} \times N} \times 100$$

The following diagram shows the results obtained in this case.



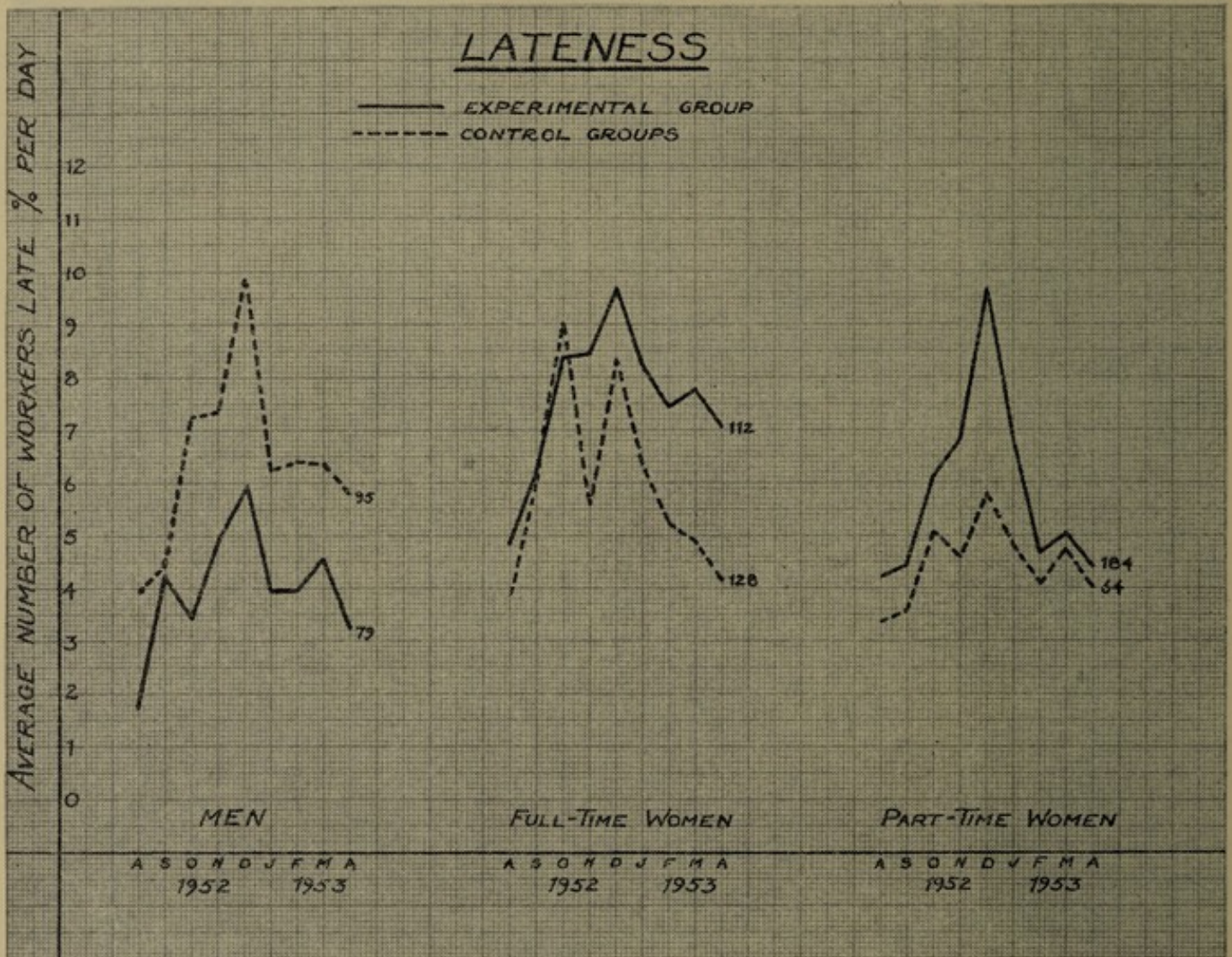
It will be seen that the monthly fluctuations in the index are very large, and that the average values of the 'B.M.I.' do not differ significantly from zero—with the possible exception of the part-time women in the experimental group. It can be concluded, therefore, that there was, in general, no voluntary absenteeism—as measured by the 'Blue Monday Index'—in this firm during the experimental period, and consequently the experimental conditions could not improve the situation. In the case of the part-time women in the experimental group, the extent of absenteeism as measured by this index amounts to the fact that about one woman in a

hundred, not necessarily the same woman each week, of course, took Monday 'off' without a real excuse. There is no evidence that the experimental conditions tended to improve this situation.

The figures for lateness were taken from the 'clocking-in cards'. No distinction has been made between lateness of up to five minutes and lateness for which half an hour was debited to the worker. The following diagram indicates the average monthly figures for 'incidents of lateness'. Similar seasonal trends appear for each group—the average number of workers

late per day in the winter being roughly double the figure for the summer months. This is pre-

sumably due mainly to transport difficulties on dark and inclement mornings.



There is no evidence from these figures that the experimental conditions had any significant effect on workers' punctuality.

(iv) MORALE

The second attitude survey was conducted at the beginning of February, 1953. The questionnaire used was almost identical with that used in the earlier survey. Not surprisingly there

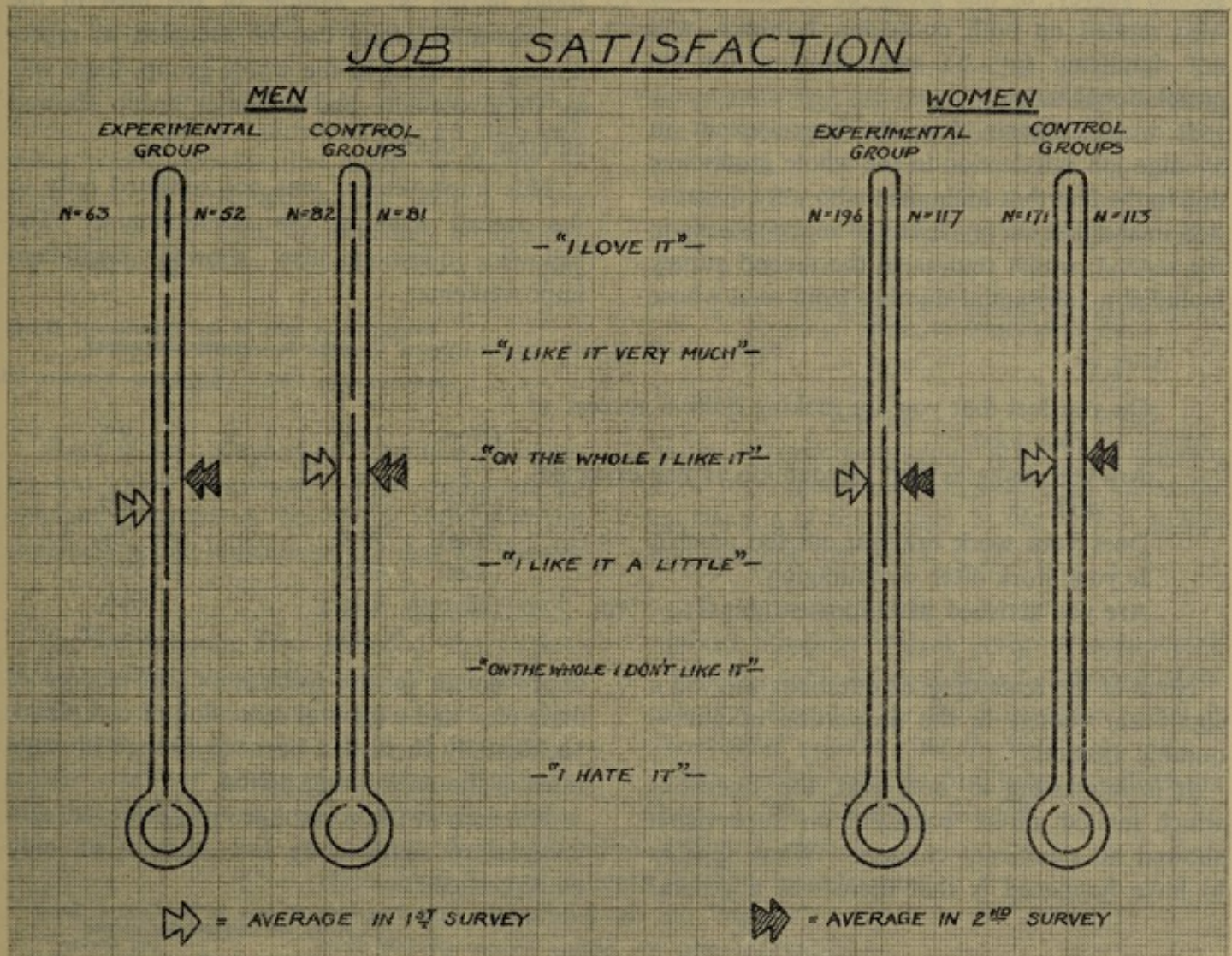
The coverages in the 1st and 2nd Survey were:—

	Experimental Group Women	Control Group Women	Experimental Group Men	Control Group Men
1st Survey Coverage	57%	71%	58%	73%
2nd Survey Coverage	41%	54%	55%	65%
Ratio of $\frac{2nd\ Survey\ Coverage}{1st\ Survey\ Coverage}$	0.72	0.76	0.95	0.89

was a reduction of coverage on the second occasion—the novelty had presumably worn off. However, as the shrinkage occurred in both the experimental and control groups, and because the labour stability indices were similar and fairly high (70-80%), it is not unreasonable to compare the first and second surveys for each group.

The following diagram shows the average ratings of overall job-satisfaction of each group before and after the period of nine months

during which the supervisors in the experimental group took part in a series of discussion meetings.



A summary of the relevant statistical data is given in Appendix V. It will be seen that all the *changes* in the average job satisfaction ratings were small. Nevertheless, the *differences* between the experimental and control groups on the first survey were statistically significant; in the case of both men and women the employees in the experimental department expressed significantly lower satisfaction than employees in the control groups.

The only *change* in average job satisfaction which is statistically significant was in the experimental group of men. Here an improvement

of more than twice the standard error of the mean occurred, and this is significant beyond the 5% level. However, as only just over half the men in the group returned questionnaires on each occasion it is quite possible that the difference might be due to the fact that different men reported on the two occasions. In order to check this the forms returned by the men in the experimental group were scrutinised and it was possible to pair the 1st and 2nd returns by 30 of these men. (The matching was possible because over 60% of the men chose to sign their questionnaires on each occasion). The correla-

tion between job-satisfaction ratings by individuals on the 1st and 2nd survey, in this group of 30 men, was .60. The improvement on the second survey, in this group of 30 individuals who replied on both occasions, however, was not significant ($p > .8$), even allowing for the correlational term.

It would appear that the improvement in average job satisfaction in the whole group was due to the fact that some men who were dissatisfied in the first survey failed to make returns in the second, whilst returns in the second survey included a substantial number from men whose

satisfaction was above average and who did not send in returns on the first occasion.

Nevertheless, it remains the case that, if the trend in the 55% sample of the men in the experimental group can be accepted as representing the trend in the whole group, there was an improvement—and no other group showed as large a change.

This improvement was not confined only to the overall scale of the questionnaire. The following questions also showed significant improvements:—

	Proportion of Men in the Experimental Group giving the unfavourable answer	
	1st Survey—May, 1952	2nd Survey—February, 1953
Do you feel that you are making quite a success of your job?	(No) 25%	9%
Are you doing as well in your job as you expected to?	(No) 38%	24%
Does your work tire you out too much?	(Yes) 30%	7%
Is your work often discouraging?	(Yes) 68%	52%
Are you satisfied with your earnings?	(No) 81%	63%
	N=63	N=54

None of the remaining 22 questions showed a significant change in the proportion of unfavourable answers.

It is interesting to note that the questions which invited direct comment on supervision showed no significant changes. What appears to have happened is that there was a general

improvement in the feelings of self-respect of these men and a general reduction of complaint. Incidentally there had been no change in wage rates in the intervening period.

The men in the control groups, however, also complained significantly less—though on only two questions:—

	Proportion of Men in the Control Group giving the unfavourable answer	
	1st Survey	2nd Survey
Do you like your present job better than other jobs you have had?	(No) 29%	17%
Is your work often discouraging?	(Yes) 54%	36%
	N=83	N=83

Thus although the men in the control group showed no significant improvement on the overall satisfaction scale they did improve on two specific questions, whilst the men in the experimental group improved on five specific questions as well as on the overall satisfaction scale.

Bearing in mind the uncertainties created by the reduction of coverage, it was the case that the men in the experimental group showed

higher satisfaction in the second survey, whilst the men in the control group showed considerably less change.

In the case of the women in the experimental group, however, although there was no significant change in ratings of overall job satisfaction, there was a statistically significant increase of complaint on three questions, and no improvement on any of the remaining twenty-four questions:—

Is your work too dirty? (Yes)
 Does your 'boss' expect too much? (Yes)
 Are you satisfied with your earnings? (No)

Proportion of Women in the Experimental Group giving the unfavourable answer

	1st Survey—May, 1952	2nd Survey—February, 1953
(Yes)	28%	39%
(Yes)	25%	34%
(No)	49%	62%
	N=198	N=118

It will be seen that one of these questions is directly related to supervision—and although the apparent deterioration might be due to the reduction of coverage in the second survey (57% to 41%)—there are certainly no grounds for supposing that the supervisory training

programme had improved relationships between the women supervisors and the women they supervised.

Meanwhile the women in the control groups also complained significantly more on one question in the second survey.

Do your earnings depend on too many things you cannot control?

Proportion of Women in the Control Group giving the unfavourable answer

	1st Survey	2nd Survey
	21%	35%
	N=169	N=105

These women showed no significant changes on any other questions. Thus, although no changes occurred in the overall ratings of job satisfaction, the indications are that the women

in the experimental group were less satisfied after the experiment than before it, whilst the satisfaction of the women in the control groups had changed much less, if at all.

THE ATTITUDES OF THE SUPERVISORS

The supervisors who attended the experimental training course completed two attitude scales intended to measure the extent of their agreement with the views held by 'experts in human relations' giving training to supervisors. The first of these scales was administered during

the first meetings of each group of supervisors.

The second was administered at the last of the meetings attended by the investigator—that is about three months after the first scale.

The results of the first administration are shown in the following diagram:—

SCORES ON THE FIRST ATTITUDE SCALE

(High error scores indicate marked disagreement with the views of the 'experts')

*=the score made by one individual

Error Scores	Managers	Foremen	Women Supervisors	Male Charge Hands	Women Charge Hands
0	*				
1	**	*	*	*	
2				**	**
3	*		*	*	*
4	*		***	**	*
5		*		**	
6			*		**
7		*		***	***
8				*	
9		*			*
10					*
11			*	*	**
12					**
13					
14					
15				*	

It will be seen that there is a marked relationship between the scores made by the different groups and the seniority of these groups in the management ladder. There appeared to be ample reason to hope, therefore, that by increasing the amount of communication between managers and supervisors, the supervisors' attitudes would become more like the attitudes of the managers, and hence more in agreement with the views of the 'experts'.

In fact, however, the supervisors' scores on the attitude scale did not alter very markedly during the three months in which they were first exposed to the discussion meetings:—

	At beginning of course	Three months later
'Good' attitudes (Scores of less than 3)	17.5%	17.5%
'Fair' attitudes (Scores of 3—6)	35%	52.5%
'Poor' attitudes (Scores of more than 6)	47.5%	30%

(Total of 40 supervisors attending the experimental sessions).

In view of the differences between men and women found on some of the measures, an analysis was made of the differences between the scores on the attitude scales made by the men and women supervisors. The differences were not significant as can be seen from the following tables:—

	Male Supervisors		Women Supervisors	
	Before	After	Before	After
'Good' attitudes (Scores of less than 3)	4	3	3	4
'Fair' attitudes (Scores of 3—6)	6	11	8	10

'Poor' attitudes
(Scores of more than 6)

8	4	11	8
N=18		N=22	

The directions of changes in scores on the second scale were:—

	Male Supervisors	Women Supervisors
Made better scores (Improved more than 1 point)	7	9
Negligible change	7	9
Made worse scores (Deteriorated more than 1 point)	4	4
	N=18	N=22

One rather surprising finding was that, although the average improvement on the scales was not significant (Average of 1 point for the 40 supervisors), one of the four groups produced an average improvement of 2.8 points and this is highly significant ($p < .02$). This was the first group to meet, and it had had 14 meetings by the time the second scale was administered, in comparison with 13, 12 and 11 meetings for the other three groups. It seems unlikely that the large difference in attitude change could be accounted for by this small difference in the number of meetings. The average initial scores of each of the four groups were not significantly different and it seems likely therefore that the supervisors who had been selected to join this first group were in some sense "less set in their ways" than the supervisors in the other groups.

THE SUPERVISORS' VIEWS OF THE VALUE OF THE TRAINING COURSE

Most people providing training courses for supervisors attempt to measure the success of their courses by asking the supervisors who attend them to indicate their views *at the end*

of the course. It is usual to find a fairly high level of satisfaction amongst the trainees when this is done.

For example, the following distribution was

obtained for comments on the value of courses for supervisors run by N.I.I.P. during the first six months of 1952:—

Value of the course

A. Unqualified enthusiasm	61%
B. General approval	22%
C. Qualified approval	11%
D. Mild disapproval	6%
E. Definite disapproval	0%
N=130 supervisors	

The difficulty about accepting this sort of evidence is that one can assume that there is a systematic bias in reporting due to mere politeness. An attempt was made in the experiment described to overcome this deficiency. The supervisors were asked to fill up a form *at the beginning of the course* to indicate what they felt the value of the course *was likely to be*, and then a year later they were asked to fill up a parallel version of this form to indicate what they thought the value of the course *actually had been*. (The forms used are shown in Appendix III). If only the form filled up at the end of the course is considered it would seem that the course had been really quite useful.

Value of the course

It was most helpful to me	23%
It was very helpful	13%
It was quite helpful	17%
It was of some help	33%
I don't think it helped me much	7%
There wasn't anything new for me	0%

THE SUPERVISORS' VIEWS OF THE RELEVANCE OF THE DISCUSSION TOPICS

It was, as has been explained, one of the basic aims of the course, to provide genuine

There was nothing which experience hadn't already taught me	7%
I consider it was a waste of my time	0%

N=30 supervisors

(10 supervisors did not complete this form).

However, when this is compared with the results, obtained a year earlier, from the same 30 supervisors when asked what they *expected the value of the course would be*, it will be clear that the measurement of opinion after the course only is extremely misleading:—

Expected value of the Course

It should be most helpful to me	57%
It may be very helpful	10%
It may be quite helpful	17%
It may be of some help	0%
I doubt if it will help me much	7%
I don't expect there will be anything new for me	0%
There won't be anything which experience hasn't already taught me	10%
I consider it a waste of my time	0%

N=30 supervisors

It seems clear that the expectations of the majority had not been fulfilled, despite the fact that by-and-large their comments at the end of the course were favourable. It is true, of course, that the supervisors may have felt less constraint to be conventionally polite to the investigator after a year's acquaintance with him.

assistance to the supervisors by providing the information that they themselves felt they

needed. As has been indicated earlier, this aim was not really achieved, the supervisors did not put forward many suggestions about items to be included in the training programme and senior management had to 'feed' a considerable number of suggestions about topics for discussion to the groups. This 'feeding' was always in terms of "Would you like to discuss either Production Control, or Sales Policy, or the Transport Section, or have you any other suggestions?" Thus, to some small extent, the 'non-directive' character of the programme was preserved. Some measures of the supervisors'

reactions to the content of the training programme was provided by the forms which were filled up by the supervisors at the start of the course and again a year later. (Appendix III).

Two of the questions the supervisors answered related to how much they felt they knew about the organisation of the firm, and how much they felt they ought to know. These questions produced the following distributions of answers on the first and second administrations:—

"(1) How much do you know at present about the organisation of the firm and the work of departments other than your own?"

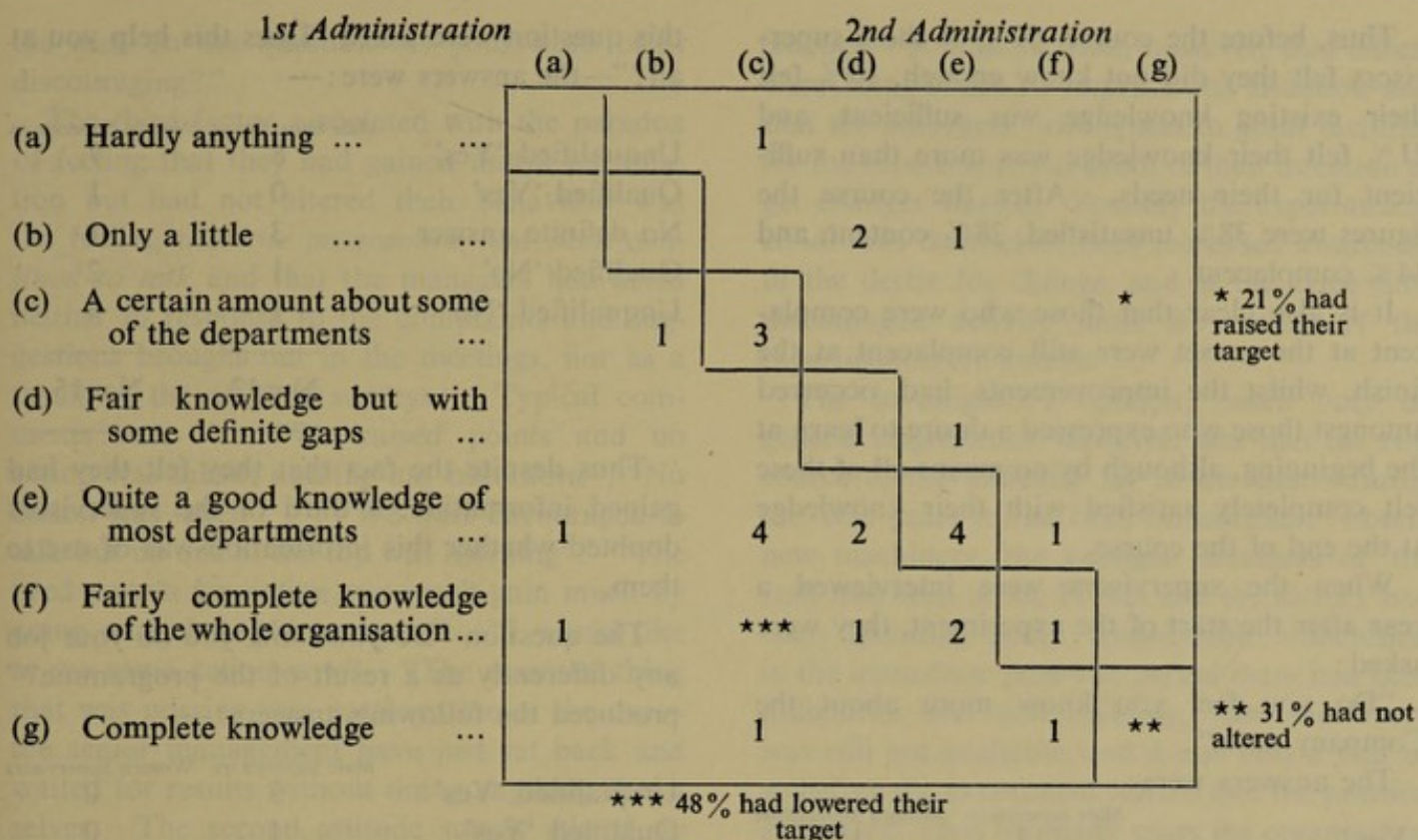
	1st Administration		2nd Administration					
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	
(a) Hardly anything ...			2					
(b) Only a little ...		2	1	3	1	*		* 52% feel they know more after the course
(c) A certain amount about some of the departments ...			6	1	4	1		
(d) Fair knowledge but with some definite gaps ...			2	3	3			
(e) Quite a good knowledge of most departments ...			1		**			** 35% feel no change
(f) Fairly complete knowledge of the whole organisation ...					1			
(g) Complete knowledge ...				***				*** 13% feel they know less than they thought they did at first

(N=31. One supervisor did not answer on both occasions).

It seems clear from these figures that the course had enabled the majority of the supervisors to find out more about the organisation. In the case of the 13% who apparently felt they knew less the result can be taken partly as an estimate of the error of the ratings and partly as an indication of an altered frame of reference—*i.e.* these supervisors could see their own

knowledge against a much larger background.

"(2) From your experience, how much knowledge of the organisation of the firm and the work of departments other than your own do you think is necessary for *you* to do *your* job efficiently? Be as frank as you can".



(N=29. Three supervisors did not answer on both occasions.)

It would appear from these figures that one effect of the course was to make the supervisors more uniform in their level of aspiration—it will be seen that those who raised their targets tended to have low targets to start with, whilst those who lowered their targets had high ones to start with. It is perhaps disappointing that the effect of the course had been to reduce rather than to increase the desire to learn more about

the organisation.

These ratings can also be used more directly to gain information about the levels of aspiration of individuals before and after the course. The following diagram shows the number of steps between what each supervisor felt he or she knew and what he or she thought was the amount of knowledge necessary for efficient performance.

Before the Course		After the Course									
		(Unsatisfied)			(Content)		(Complacent)				
		4	3	2	1	0	1	2	3	4	
Felt they did not know enough already (Unsatisfied)	4 steps		2		1					1	69%
	3 steps	1			1	1	1	1			
	2 steps		1	1	1	3					
	1 step				2	2				1	
Felt present knowledge was sufficient (Content)	0 steps				1	2					10%
Felt present knowledge was more than sufficient (Complacent)	1 step						4	1			21%
	2 steps							1			
	3 steps										
	4 steps										
		38%			28%		34%				

(N=29. Three supervisors did not answer on both occasions.)

Thus, before the course, 69% of these supervisors felt they did not know enough, 10% felt their existing knowledge was sufficient, and 21% felt their knowledge was more than sufficient for their needs. After the course the figures were 38% unsatisfied, 28% content, and 34% complacent.

It is also clear that those who were complacent at the outset were still complacent at the finish, whilst the improvements had occurred amongst those who expressed a desire to learn at the beginning, although by no means all of these felt completely satisfied with their knowledge at the end of the course.

When the supervisors were interviewed a year after the start of the experiment, they were asked:

"Do you feel you know more about the Company now?"

The answers were:—

	Male Supervisors	Women Supervisors
'Yes'	13	15
No definite answer	2	0
'No'	2	0
	N=17	N=15

The evidence is clear—the majority of the supervisors felt they had gained information about the organisation of the firm.

When, however, those who answered 'Yes' to

THE DEMAND FOR MANAGEMENT ACTION

The difference between this result and the feeling, of at least a substantial number of the supervisors, that they had gained some useful information, can be accounted for in part by three different factors. Comments during the interviews indicated that although some supervisors did not feel they did their jobs any differently, they felt in a much better position to deal with emergencies, if and when these occurred. Secondly, that although they did not do their jobs any differently, they were much more aware of the difficulties faced by such departments as the Production Control section, and

this question were asked "Does this help you at all?"—the answers were:—

	Male Supervisors	Women Supervisors
Unqualified 'Yes'	8	7
Qualified 'Yes'	0	1
No definite answer	3	1
Qualified 'No'	1	2
Unqualified 'No'	1	4
	N=13	N=15

Thus despite the fact that they felt they had gained information, a third of the supervisors doubted whether this information was of use to them.

The question "Do you think you do your job any differently as a result of the programme?" produced the following answers:—

	Male Supervisors	Women Supervisors
Unqualified 'Yes'	3	0
Qualified 'Yes'	1	0
No definite answer	4	0
Qualified 'No'	1	3
Unqualified 'No'	8	12
	N=17	N=15

That is only a quarter of the men and none of the women felt that the programme had produced a change in their behaviour.

were consequently more tolerant when hold-ups occurred, and were less inclined to believe that these hold-ups and switches to different schedules were due to incompetent management and callous disregard of the difficulties they caused for the production departments. Several of the male supervisors and two of the woman supervisors said that they were now in a position to explain to their operatives the reasons for these irritating alterations of schedule and consequently to relieve some of the annoyance produced. In this connection it may be recalled that there was a reduction in the amount of complaint by

the men on the question "Is your work often discouraging?"

The third factor associated with the paradox of feeling that they had gained useful information but had not altered their behaviour was the feeling that *the programme had been confined to talk* and that the managers had acted neither in response to the complaints and suggestions brought out in the meetings, nor as a result of the attitude surveys. Typical comments were . . . "We raised points and no action was taken; nothing has been *done*", "No action was taken . . . We were encouraged to talk but no one at the top was listening". "The need now is for action, we won't gain much by going over these things again". "I would like to see some action now". "The essential thing that was missing was participation at the top—the senior management have just sat back and waited for results without doing anything themselves. The second attitude survey stirred up trouble, operatives complain that nothing has been done". "The discussions helped to let me know what was going on—it's a matter of putting things right now" . . . and so on.

It is difficult to say how far these complaints were justified. There was certainly a strong feeling—particularly at some levels—that the senior management had not been active enough in initiating changes—there were complaints that methods of work had not been studied and improved for years, that the wages structure in the department was both excessively complicated and had several anomalies, that the selection of operatives was inefficient, that the heating and ventilation in the department were not good enough, that piece-workers were treated much too favourably in comparison with day-rate workers, and so on. There seemed to be grounds, too, for complaints that the selection of supervisors in the past had been haphazard and that the promotion policies were not clear. Indeed it would probably be fair to say that the department had not, for some years, had its fair share of innovations and improvements both in methods of work and in management

practice. It was the case, however, that efforts were being made to improve the situation and that the managers' willingness to grant facilities for the experiment was proof of their intention to get changes started. Possibly the experimental conditions themselves both increased awareness of the desire for change, and at the same time discouraged activity until the results of the experiment were known.

The investigator's opinion, based only on general impressions, however, was that the real source of the difficulty lay in the past—during the War years it had been impossible to obtain new machinery, the younger members of the staff had been in the Forces and the factory had been operating under considerable difficulties; in the immediate post-war period there had been difficulties over new building, new machinery was still not available, and it was only a year or so before the experiment started that the position had eased. Thus for many years the organisation had been working on a 'mend-and-make-do' basis, and there was naturally a considerable accumulation of innovation awaiting introduction. The previous Works Manager, who had retired about a year before the experiment had begun, had a reputation of keeping all the strings in his own hands, of failing to delegate responsibility sufficiently, and consequently of having too many elderly and not sufficiently self-reliant and go-ahead assistants. These criticisms may not be justified, but there was evidence that some of the supervisors in the firm had been promoted to posts which they could fill effectively only while their responsibilities were strictly limited, and that deprived of a Works Manager who wielded all the real authority, they were unable to meet the requirements of their nominal positions.

The situation was not made easier by the admirable general philosophy of management in the firm that changes must be made with gentleness and that individuals, who might in the past have been promoted beyond the limits of their natural endowments, must be protected and decently treated. This meant that

they would be 'shunted' into positions of limited responsibility in which they could retain status and self-respect until they reached the retiring age, and changes such as these were delicate matters requiring much patience and tact on the part of senior management.

Thus there were good reasons for the apparent slowness of senior management in making the sort of changes that were increasingly being requested by the supervisors. While it is true that some of the feeling about the need for alterations existed before the experiment began, there can be little doubt that the discussion groups produced much more vocal expression of these feelings. While this may have been desirable, as is often suggested that the undue conservatism of the supervisory grades is a major difficulty in the introduction of improved working methods, the facts in this case were that the liberation of expressions of a desire for change from the supervisors combined with the reasonable reluctance of senior management to initiate large programmes of innovation for which competent and trained staff were not immediately available, did place the members of middle management, particularly the manager of the experimental department, in a frustrating and awkward position.

A further difficulty was created by the fact that attempts were being made to conduct the programme in a manner which permitted the evaluation of its effects. There was some confusion in the minds of some of the managers

DID THE PROGRAMME CREATE DIFFICULTIES FOR INDIVIDUALS?

One previous study of supervisory training (Zaleznik "Foreman Training in a Growing Enterprise", Harvard University Press, 1951) showed how a supervisory training programme had greatly upset—rather than helped—one of the foremen concerned.

In the interviews a year after the start of the present experimental programme, the supervisors and managers concerned were asked:—"Did you find the scheme made life in any way more difficult for you?" The answers were:—

about the extent to which it was intended to limit the programme to mere talk. In fact, of course, it was originally intended that the discussion sessions were merely to be the starting point of activity—but fairly late in the programme it was found that some things which were brought up in the course of the discussions were not being dealt with "because it would upset the experiment". (It was the case, of course, that action on the results of the first attitude survey was restricted, but this restriction did not apply to material brought out in the supervisors' discussion meetings.) How far this misunderstanding of the experimental design reduced the effectiveness of the programme is difficult to say, but it is the investigator's opinion that the effect was very small and that the misunderstanding was not genuine, but was being put forward as an excuse as a result of the frustration produced by pressure for change from the supervisors and the absence of a show of obvious willingness to initiate change on the part of senior management.

Two genuine difficulties created by the experimental design were (i) the limitation of the scheme to one large department; several supervisors said they thought it would have been better if the groups had been made up of supervisors from all the different departments in the firm, and (ii) the fact that the results of the attitude survey could not be used in the training programme.

	Male Supervisors	Women Supervisors	Managers
Unqualified 'No'	9	9	1
Qualified 'No'	4	5	
Qualified 'Yes'	2	1	1
Unqualified 'Yes'	2	0	1

Comments from those who said 'Yes' were: "Occasionally things we said came back on us".

"In a way, yes—because of continual questions about 'Why isn't something done—it's all talk'".

"A little—it added to my work a bit".

"Yes, I found real difficulties because of the scheme. I was present when a supervisor was told by workers that she hadn't learned how to talk to them. The administrative staff have been ridiculed at the meetings—we have been on trial—each individual in front of everyone. Status has been compromised. I have found discussion groups outside the firm interesting—but these ones have been both dull and damaging".

"Yes, towards the end. Not at the beginning. The trouble was that there had been so

much talk and it wasn't followed by action. People got upset and frustrated".

"Not directly—but it was additional work, and I felt responsible for showing a real interest in it".

Only one person, if these comments are taken at their face value, had been seriously upset—one other was under considerable strain because of the feeling about the need to get things done. By and large, however, the programme avoided the worst pitfalls that were so clearly set out in Zaleznik's study.

WAS THE PROGRAMME WORTHWHILE FROM THE COMPANY'S POINT OF VIEW?

During the interviews a year after the start of the experiment, the supervisors were asked "Do you think, considering the time involved, that the conferences were worthwhile from the Firm's point of view?" At the time they answered the supervisors did not know what had happened in terms of the productivity indices, labour turnover, or the results of the second attitude survey.

The answers were as follows:—

	Male Supervisors	Female Supervisors
Unqualified 'Yes'	8	3
Qualified 'Yes'	4	5
No definite answer	1	0
Qualified 'No'	2	4
Unqualified 'No'	2	3
	—————	—————
	N=17	N=15
	—————	—————

This is rather surprising in view of the fact that so few of these people thought that their own behaviour had been influenced. The reasons they gave for thinking the programme had been worthwhile serve to explain the paradox:

"I certainly think it was worthwhile. I think the management know more about the firm than they've known for some time".

"Oh yes, definitely! The firm have learnt more from it than those taking part in it.

They've got a better knowledge of their personnel. They know now who it is worthwhile continuing with".

"I think they must have. I should think they got some very useful information they hadn't got before. Some of the office people were a bit out of touch".

"Yes, it gives you a chance to form an opinion".

"Yes, it has cleared the air on some points".

"Yes, I think they will pay dividends in time".

"There were occasions when I could ill afford the time. On the whole, it was worthwhile to the firm—they got the opinions of a lot of the workers".

"I sincerely do. It brought matters to light which would normally have been disregarded. The need now is for action after all the talk".

"Oh, yes, I think people learned quite a lot and it's helped them too. People are much more conscious of the way they approach you to ask you to do things, but I still feel there are people who won't speak out about their troubles".

It will be seen that these comments relate much more to the supervisors' relationships upwards, than either to their being taught anything or to their relationships with each other or with their subordinates. Indeed, the general emphasis is on the value of the programme in letting the

supervisors state their problems to the managers and the hope that as a result something will eventually be done.

The comments of the three managers most closely concerned are also of interest in reflecting rather similar views. These people, unlike the supervisors, knew the changes of the productivity figures, but had not seen the results of the second attitude survey.

"Do you think, considering the time involved, that the conferences were worthwhile from the firm's point of view?"

"Very definitely. We lost absolutely nothing in production and even if it was only a get-together amongst these people it served a useful purpose. There was some disappointment—we all felt that. But personally I welcomed the chance to see these people in the group sessions. I saw a side of some of them that I hadn't seen before, one or two quiet people showed up rather well—but there were others I had thought rather highly of who proved rather disappointing. In the case of a number of supervisors, my relationships with them have improved considerably and I think more highly of them now. The discussion of subjects like Costing was an eye-opener for many of them—where they were intolerant before their greater understanding has made them more tolerant. I'm not sure that it hasn't been rather a strain on the Department Head—particularly as he feels that in some cases there has been a deterioration of relationships".

"Up until November or December, I would definitely have said yes. Since then, by the firm's attitude, the position has become very confused. But on the evidence of the producti-

vity figures I don't think any real harm has been done at least. My own interest in the scheme was rather specialised—I was trying to understand what the supervisors wanted and what we should try to give them. I had a general understanding of the problem before, I think I see the issues more clearly now. One thing I am convinced about—it's no use training people for new activities unless you let them try to carry them out afterwards".

"I think we allowed the scheme to go on too long. We should have stopped the talk earlier and got down to doing something about the points that had been brought up. I must say the sessions opened my eyes to the supervisors' outlook and to the workers' outlook as well. The human relations training cut both ways—the chargehands were left in the middle—being exhorted to be better and yet being treated in the same old way themselves. There are signs of a new feeling in the firm, we are starting to get a move on with some of the changes that are necessary and people obviously want these changes".

Here again, is the feeling that the scheme has increased the managers' understanding of the supervisor's problems, and has encouraged a desire to take action after all the talk. There are signs, too, that the senior managers are aware of the pressure that the scheme has placed on the people in the middle. If these managers had started off thinking of a training scheme in terms of getting information into the heads of the supervisors, now they think much more in terms of *using* the information they get *from* the supervisors.

SUMMARY AND CONCLUSIONS

This paper describes an experiment to measure the effectiveness of a supervisory training scheme. One large department of a medium-sized firm was used as an experimental group, three other departments were used as controls. Forty supervisors were included in the experimental group, they were in charge of some 400

operatives. Records of productivity, labour turnover, absence, absenteeism and lateness, were kept for both experimental and control groups. In addition, two attitude surveys of the entire firm were made by questionnaire. The first survey was conducted just before the start of the training scheme, the second survey was

conducted nine months later. Finally, 32 of the 40 supervisors were interviewed one year after the start of the training programme, and their views on its value were elicited.

The training was conducted by means of discussion meetings. Each meeting consisted of 10 or 11 supervisors and some managers. The meetings took place once a week and lasted about an hour and a quarter each, and were continued for about six months.

During the period there was an 8% rise in productivity in the experimental group but not in the controls. Labour turnover fell in the experimental group while it rose in the control groups during the first nine months; in the next three months, however, the trends were reversed and the turnover rates in both groups returned to almost identical figures. There was no evidence that absence rates, absenteeism, or lateness, were affected by the experiment.

The results of the attitude surveys suggest a small improvement in the job satisfaction of the men in the experimental group, but the women in this group were not more satisfied after the training scheme had been in operation for nine months; indeed, there are grounds for believing that their satisfaction had decreased.

A quarter of the supervisors showed a significant improvement on an attitude scale designed to measure their agreement with 'experts' giving

human relations training, after being exposed to the discussion meetings for three months. The remaining three-quarters of the supervisors showed no significant change.

Very few of the supervisors felt that they did their jobs any differently as a result of the scheme, but the majority felt it had been worthwhile as it had enabled them to state their problems to senior management. One of the main results of the experiment was an increased pressure on managers to initiate changes and innovations, and this pressure caused considerable difficulties for the middle management grades. This may in fact have been a desirable result in some ways, as it was clear that the supervisors and operatives were in a mood to welcome experiments and innovations which might improve the efficiency and morale of the department.

The broad conclusion from the experiment is that 'human relations' training for these supervisors did not affect their behaviour on the job to any very noticeable degree, but that the method of conducting the training within the firm, although giving rise to frustration because "it's all talk—it's time somebody did something", created a greater awareness in the minds of the managers of the problems that the supervisors regarded as important and might thus permit them to take steps to solve these problems.

APPENDIX I

(1st VERSION)

HOW DO YOU LIKE YOUR JOB ?

You may have heard that some research is being carried out at (Name of Firm) on how much people like their jobs. It would be of great value to the research if you would fill up this form about how *you* feel about *your* job.

You need not give your name if you don't want to, but the completed forms will not be seen by anyone except the staff of the National Institute of Industrial Psychology.

- _____
- (1) I have been in my present job.....years.
- (2) I have worked at (Name of Firm).....years altogether.
- (3) My job is.....
(e.g. Press Operator, Packer, Trimmer, Supervisor, Checker, or whatever your job is usually called).

- (4) My age is.....years.

- (5) I am male (cross out which does not apply).
female

- (6) I work full-time (cross out which does not apply).
part-time

- (7) Now consider all the things that are part of your job, the actual work, the pay, the conditions of heating, lighting and ventilation, the way you are supervised, the people you work with and so on, and then put a cross (X) beside the statement that most nearly describes the way *you* feel about *your* job.

I hate it
I dislike it
On the whole I don't like it
I am indifferent to it
I like it a little
I like it fairly well
On the whole I like it
I like it a good deal
I like it very much
I am enthusiastic about it
I love it

- (8) Now put a cross against the statement below which most nearly describes how much of the time you feel satisfied with your job.

I feel satisfied with my job:—

All of the time
Most of the time
A good deal of the time
About half of the time
Occasionally
Seldom
Never

- (9) What are the things which you like best about your job?

.....
.....
.....

(10) What are the things which you dislike most about it?

.....

.....

.....

(11) After each of the following questions draw a circle round Yes if the answer is "yes." Draw a circle round No if the answer is "no." Draw a circle round ? if you are not sure. Leave it blank if you find the question too difficult to answer.

- (1) Do you like your present job better than other jobs you have had?... Yes ? No
- (2) Have you ever thought seriously about changing your present job ... Yes ? No
- (3) Is your work interesting? Yes ? No
- (4) Can you see the results of your work? Yes ? No
- (5) Do you feel that you are making quite a success of your job? ... Yes ? No
- (6) Are you doing as well in your job as you expected to? Yes ? No
- (7) Does your work tire you out too much? Yes ? No
- (8) Is your work often discouraging? Yes ? No
- (9) Is your work too dirty? Yes ? No
- (10) Is there too much noise where you work? Yes ? No
- (11) Is your job too monotonous? Yes ? No
- (12) Are you pretty much your own "boss"? Yes ? No
- (13) Does your "boss" (that is the person you think of as most directly in charge of your work) have a wrong opinion of you? Yes ? No
- (14) Does your "boss" expect too much? Yes ? No
- (15) Does your "boss" take all the credit when you do good work? ... Yes ? No
- (16) Would you choose another "boss" if you could? Yes ? No
- (17) Does your "boss" treat you fairly? Yes ? No
- (18) Does your "boss" treat you unusually well? Yes ? No
- (19) Is your "boss" a woman? Yes ? No
- (20) Is your work always judged by fair standards? Yes ? No
- (21) Do you have too many "bosses"? Yes ? No
- (22) Does your "boss" praise you when you do good work? Yes ? No
- (23) Do people appreciate your work? Yes ? No
- (24) Do your earnings depend on too many things you cannot control? Yes ? No
- (25) Are you satisfied with your earnings? Yes ? No

(26) Are you satisfied with your opportunities to advance? Yes ? No

(27) Are you satisfied with your hours of work? ... Yes ? No

(12) If you would like to say anything else about how you feel about your job, write it here:—

You can put your name here if you like.....

Bring this form to work tomorrow—it will be collected by one of the staff of the National Institute of Industrial Psychology in the same way that it was given you.

That's all. Thank you very much for your co-operation.

JOHN D. HANDYSIDE,
Industrial Psychologist.

APPENDIX I

(2nd VERSION)

HOW DO YOU LIKE YOUR JOB NOW?

You may remember that everyone at (Name of Firm) was invited, last May, to fill up a form like this one.

The forms which were returned provided a great deal of most useful information. I realise that many of you took a lot of trouble filling them up and I am most grateful to you for doing so.

Since then there have been a number of changes which may or may not have affected your satisfaction with your job. It is, of course, most important to know whether these changes are producing the results hoped for. For this reason it would be of the greatest help if you would fill up this form to say how you feel about your job now.

Please say how *you* feel about *your* job now, and if there are points you wrote about before that you still feel are important please mention them this time.

You need not give your name if you don't want to but the completed forms will not be seen by anyone except the staff of the National Institute of Industrial Psychology.

Did you return a completed form last May?
 Yes
 No (Cross out which does not apply).

- (1) I have been in my present job.....years.
- (2) I have worked at (Name of Firm).....years altogether.
- (3) My job is.....
 (e.g. Press Operator, Packer, Trimmer, Supervisor, Checker, or whatever your job is usually called).
- (4) My age is.....years.
- (5) I am (cross out which does not apply).
 male
 female
- (6) I work (cross out which does not apply).
 full-time
 part-time
- (7) Now consider all the things that are part of your job, the actual work, the pay, the conditions of heating, lighting and ventilation, the way you are supervised, the people you work with and so on, and then put a cross (X) beside the statement that most nearly describes the way you feel about your job.

I hate it
 I dislike it
 On the whole I don't like it
 I am indifferent to it
 I like it a little
 I like it fairly well
 On the whole I like it
 I like it a good deal
 I like it very much
 I am enthusiastic about it
 I love it

- (8) Now put a cross against the statement below which most nearly describes how much of the time you feel satisfied with your job.

I feel satisfied with my job:—

All of the time
 Most of the time
 A good deal of the time
 About half of the time
 Occasionally
 Seldom
 Never

(9) What are the things which you like best about your job?

.....

(10) What are the things which you dislike most about it?

.....

(11) After each of the following questions draw a circle round Yes if the answer is "yes." Draw a circle round No if the answer is "no." Draw a circle round ? if you are not sure. Leave it blank if you find the question too difficult to answer.

- (1) Do you like your present job better than other jobs you have had? Yes ? No
- (2) Have you ever thought seriously about changing your present job? Yes ? No
- (3) Is your work interesting? Yes ? No
- (4) Can you see the results of your work? Yes ? No
- (5) Do you feel that you are making quite a success of your job? ... Yes ? No
- (6) Are you doing as well in your job as you expected to? Yes ? No
- (7) Does your work tire you out too much? Yes ? No
- (8) Is your work often discouraging? Yes ? No
- (9) Is your work too dirty? Yes ? No
- (10) Is there too much noise where you work? Yes ? No
- (11) Is your job too monotonous? Yes ? No
- (12) Are you pretty much your own "boss"? Yes ? No
- (13) Does your "boss" (that is the person you think of as most directly in charge of your work) have a wrong opinion of you? Yes ? No
- (14) Does your "boss" expect too much? Yes ? No
- (15) Does your "boss" take all the credit when you do good work? Yes ? No
- (16) Would you choose another "boss" if you could? Yes ? No
- (17) Does your "boss" treat you fairly? Yes ? No
- (18) Does your "boss" treat you unusually well? Yes ? No
- (19) Is your "boss" a woman? Yes ? No
- (20) Is your work always judged by fair standards? Yes ? No

APPENDIX II

(1st VERSION)

SURVEY OF FOREMEN'S OPINION

1. A foreman is responsible for trying to see that his workers enjoy their work.
Strongly Agree: *Agree:* *Uncertain:* *Disagree:* *Strongly Disagree.*
2. Foremen, since they cannot alter the higher policies of the firm, can do little to improve morale in their own departments.
Strongly Agree: *Agree:* *Uncertain:* *Disagree:* *Strongly Disagree.*
3. If management asks a foreman to make a change affecting some of his workers, it is a sign of weakness for him to discuss it with the workers first.
Strongly Agree: *Agree:* *Uncertain:* *Disagree:* *Strongly Disagree.*
4. A good way of handling a dissatisfied worker is to report him to the management and let them deal with him
Strongly Agree: *Agree:* *Uncertain:* *Disagree:* *Strongly Disagree.*
5. A reprimand is more effective when given in front of others.
Strongly Agree: *Agree:* *Uncertain:* *Disagree:* *Strongly Disagree.*
6. There are times when a foreman should not give all his workers the same treatment.
Strongly Agree: *Agree:* *Uncertain:* *Disagree:* *Strongly Disagree.*
7. The foreman should try not to spend much time dealing with his workers' personal problems.
Strongly Agree: *Agree:* *Uncertain:* *Disagree:* *Strongly Disagree.*
8. It does not matter much what the worker is thinking, provided he is getting out production fairly well.
Strongly Agree: *Agree:* *Uncertain:* *Disagree:* *Strongly Disagree.*
9. The good foreman is not afraid of making mistakes.
Strongly Agree: *Agree:* *Uncertain:* *Disagree:* *Strongly Disagree.*
10. The more the foreman takes the shop steward into his confidence, the better.
Strongly Agree: *Agree:* *Uncertain:* *Disagree:* *Strongly Disagree.*
11. A good way of dealing with slackers is to transfer them to jobs they do not like.
Strongly Agree: *Agree:* *Uncertain:* *Disagree:* *Strongly Disagree.*
12. If a foreman loses the power to award increases in pay, he loses the only incentive at his disposal.
Strongly Agree: *Agree:* *Uncertain:* *Disagree:* *Strongly Disagree.*
13. If an offence has been committed and the foreman cannot find out who has done it, it would be wrong to punish the whole department.
Strongly Agree: *Agree:* *Uncertain:* *Disagree:* *Strongly Disagree.*
14. Most workers only come to work to get what they can out of it.
Strongly Agree: *Agree:* *Uncertain:* *Disagree:* *Strongly Disagree.*
15. If one worker complains about another, the foreman should refuse to listen.
Strongly Agree: *Agree:* *Uncertain:* *Disagree:* *Strongly Disagree.*
16. The foreman should not give orders, so much as try to explain the reason why this or that action has to be done
Strongly Agree: *Agree:* *Uncertain:* *Disagree:* *Strongly Disagree.*

NOTE:—It is important that *all* questions should be answered.

(a)

APPENDIX II

(2nd VERSION)

23 SURVEY OF FOREMEN'S OPINION 002

1. It makes a lot of difference to the average worker how his foreman treats him.

<i>Strongly Agree:</i>	<i>Agree:</i>	<i>Uncertain:</i>	<i>Disagree:</i>	<i>Strongly Disagree.</i>
------------------------	---------------	-------------------	------------------	---------------------------
2. A good foreman will not confess to his workers that he has made a mistake.

<i>Strongly Agree:</i>	<i>Agree:</i>	<i>Uncertain:</i>	<i>Disagree:</i>	<i>Strongly Disagree.</i>
------------------------	---------------	-------------------	------------------	---------------------------
3. Most young workers of today have had too soft an upbringing.

<i>Strongly Agree:</i>	<i>Agree:</i>	<i>Uncertain:</i>	<i>Disagree:</i>	<i>Strongly Disagree.</i>
------------------------	---------------	-------------------	------------------	---------------------------
4. Sarcasm may be a very good way of dealing with young workers who disobey rules.

<i>Strongly Agree:</i>	<i>Agree:</i>	<i>Uncertain:</i>	<i>Disagree:</i>	<i>Strongly Disagree.</i>
------------------------	---------------	-------------------	------------------	---------------------------
5. The best foreman is often the most unpopular.

<i>Strongly Agree:</i>	<i>Agree:</i>	<i>Uncertain:</i>	<i>Disagree:</i>	<i>Strongly Disagree.</i>
------------------------	---------------	-------------------	------------------	---------------------------
6. A foreman should be able to handle his workers in such a way that he need not have the power of dismissing them.

<i>Strongly Agree:</i>	<i>Agree:</i>	<i>Uncertain:</i>	<i>Disagree:</i>	<i>Strongly Disagree.</i>
------------------------	---------------	-------------------	------------------	---------------------------
7. Most workers are secretly quite pleased when the foreman slips up.

<i>Strongly Agree:</i>	<i>Agree:</i>	<i>Uncertain:</i>	<i>Disagree:</i>	<i>Strongly Disagree.</i>
------------------------	---------------	-------------------	------------------	---------------------------
8. The foreman should take the view that management is always right.

<i>Strongly Agree:</i>	<i>Agree:</i>	<i>Uncertain:</i>	<i>Disagree:</i>	<i>Strongly Disagree.</i>
------------------------	---------------	-------------------	------------------	---------------------------
9. There is no harm in a foreman having one of his workers as a close friend.

<i>Strongly Agree:</i>	<i>Agree:</i>	<i>Uncertain:</i>	<i>Disagree:</i>	<i>Strongly Disagree.</i>
------------------------	---------------	-------------------	------------------	---------------------------
10. The foreman should always try to make clear to his workers what the management intends.

<i>Strongly Agree:</i>	<i>Agree:</i>	<i>Uncertain:</i>	<i>Disagree:</i>	<i>Strongly Disagree.</i>
------------------------	---------------	-------------------	------------------	---------------------------
11. A good foreman will not allow the shop steward to participate in any way in the running of the group.

<i>Strongly Agree:</i>	<i>Agree:</i>	<i>Uncertain:</i>	<i>Disagree:</i>	<i>Strongly Disagree.</i>
------------------------	---------------	-------------------	------------------	---------------------------
12. A foreman should never make an exception.

<i>Strongly Agree:</i>	<i>Agree:</i>	<i>Uncertain:</i>	<i>Disagree:</i>	<i>Strongly Disagree.</i>
------------------------	---------------	-------------------	------------------	---------------------------
13. If a worker comes to the foreman angry about something, the foreman should listen sympathetically to all his troubles, even if he thinks they are stupid.

<i>Strongly Agree:</i>	<i>Agree:</i>	<i>Uncertain:</i>	<i>Disagree:</i>	<i>Strongly Disagree.</i>
------------------------	---------------	-------------------	------------------	---------------------------
14. Since reducing costs is primarily the concern of management, the foreman need not discuss this sort of thing with workers.

<i>Strongly Agree:</i>	<i>Agree:</i>	<i>Uncertain:</i>	<i>Disagree:</i>	<i>Strongly Disagree.</i>
------------------------	---------------	-------------------	------------------	---------------------------
15. One will never really get good discipline again until there is a queue outside the gate.

<i>Strongly Agree:</i>	<i>Agree:</i>	<i>Uncertain:</i>	<i>Disagree:</i>	<i>Strongly Disagree.</i>
------------------------	---------------	-------------------	------------------	---------------------------
16. If one of his workers frequently comes in late, the first thing the foreman should do is to find out why.

<i>Strongly Agree:</i>	<i>Agree:</i>	<i>Uncertain:</i>	<i>Disagree:</i>	<i>Strongly Disagree.</i>
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NOTE:—It is important that *all* questions should be answered.

(b)

SCORING SHEET FOR ATTITUDE SCALES

NAME.....

FIRM

Scale taken first: A or B

A.

2.	...	2	1	*	*	*
3.	...	2	1	*	*	*
4.	...	2	1	*	*	*
5.	...	2	1	*	*	*
6.	...	*	*	*	1	2
7.	...	2	1	*	*	*
8.	...	2	1	*	*	*
9.	...	*	*	*	1	2
10.	...	*	*	*	1	2
11.	...	2	1	*	*	*
12.	...	2	1	*	*	*
13.	...	*	*	*	1	2
14.	...	2	1	*	*	*
15.	...	2	1	*	*	*
16.	...	*	*	*	1	2

Date..... Total.....

B.

2.	...	2	1	*	*	*
3.	...	2	1	*	*	*
4.	...	2	1	*	*	*
5.	...	2	1	*	*	*
6.	...	*	*	*	1	2
7.	...	2	1	*	*	*
8.	...	2	1	*	*	*
9.	...	*	*	*	1	2
10.	...	*	*	*	1	2
11.	...	2	1	*	*	*
12.	...	2	1	*	*	*
13.	...	*	*	*	1	2
14.	...	2	1	*	*	*
15.	...	2	1	*	*	*
16.	...	*	*	*	1	2

Date..... Total.....

Other Information:

Age

Score on Test ().....

Note--It is important that all questions should be answered.

APPENDIX III

(1st VERSION)

OPINION QUIZ

Some supervisors and managers think that a supervisor needs to understand only the organisation and jobs in his own department, while others think he should know a lot about the organisation of the firm as a whole and the work done in such departments as Personnel, Costing, Planning, Sales Department and so on.

We would like to have your opinion on these points.

- (1) How much do you know at present about the organisation of the firm and the work of departments other than your own? (Put a cross (X) against the statement that most nearly describes how you feel).

Hardly anything
 Only a little
 A certain amount about some of the departments
 Fair knowledge but with some definite gaps
 Quite a good knowledge of most departments
 Fairly complete knowledge of the whole organisation
 Complete knowledge

- (2) From your experience, how much knowledge of the organisation of the firm and the work of departments other than your own do you think is necessary for you to do your job efficiently? Be as frank as you can.

Hardly anything
 Only a little
 A certain amount about some of the departments
 Fair knowledge but with some definite gaps
 Quite a good knowledge of most departments
 Fairly complete knowledge of the whole organisation
 Complete knowledge

- (3) There is a certain amount of disagreement about whether it is a good thing to give people special training when they become supervisors.

Do you think some form of special training for supervisors is:—

Very desirable
 Desirable
 Often desirable
 May be helpful
 Pleasant but not really necessary
 Seldom desirable
 Hardly ever desirable
 Not really any use
 Does more harm than good

- (4) What is your own feeling about coming on a course of training, in view of the fact that you have a good deal of experience in the job?

It should be most useful to me
 It may be very helpful
 It may be quite helpful
 It may be of some help
 I doubt if it will help me much
 I don't expect there will be anything new for me
 There won't be anything which experience hasn't already taught me
 I consider it a waste of my time

Name..... Position

Date.....

APPENDIX III

(2nd VERSION)

OPINION QUIZ

Some supervisors and managers think that a supervisor needs to understand only the organisation and jobs in his own department, while others think he should know a lot about the organisation of the firm as a whole and the work done in such departments as Personnel, Costing, Planning, Sales Department and so on.

We would like to have your opinion on these points.

- (1) How much do you know at present about the organisation of the firm and the work of departments other than your own? (Put a cross (X) against the statement that most nearly describes how you feel).

Hardly anything
 Only a little
 A certain amount about some of the departments
 Fair knowledge but with some definite gaps
 Quite a good knowledge of most departments
 Fairly complete knowledge of the whole organisation
 Complete knowledge

- (2) From your experience, how much knowledge of the organisation of the firm and the work of departments other than your own do you think is necessary for *you* to do *your* job efficiently? Be as frank as you can.

Hardly anything
 Only a little
 A certain amount about some of the departments
 Fair knowledge but with some definite gaps
 Quite a good knowledge of most departments
 Fairly complete knowledge of the whole organisation
 Complete knowledge

- (3) There is a certain amount of disagreement about whether it is a good thing to give people special training when they become supervisors.

Do you think some form of special training for supervisors is:—

Very desirable
 Desirable
 Often desirable
 May be helpful
 Pleasant but not really necessary
 Seldom desirable
 Hardly ever desirable
 Not really any use
 Does more harm than good

- (4) What is your own feeling about having been on a course of training, in view of the fact that you have a good deal of experience in the job?

It was most helpful to me
 It was very helpful
 It was quite helpful
 It was of some help
 I don't think it helped me much
 There wasn't anything new for me
 There was nothing which experience hadn't already taught me
 I consider it was a waste of my time

Name.....

Position.....

Date.....

APPENDIX IV

INTERVIEW SCHEDULE

Experimental Department Supervisors' Views on the Value of the Training Programme

Date.....1953 Name..... Age.....

Time started..... Finished..... Rank.....

(1) Did you find the conference groups interesting?

Very
Quite
Fairly
Not really
Dull

(2) Did you find them useful to yourself?

Very
Quite
Fairly
Not really
Definitely no

Why?

(3) Did you find that they made life in any way more difficult for you?

(4) Do you think you do your job any differently as a result of them?

(5) Do you feel you know more about the Company now? Does this help you at all?

(6) Do you think that your relationships with your fellow supervisors have been altered in any way—either for the better or the worse?

(7) Can you remember any parts of the conferences which seemed particularly useful?

INTERVIEW SCHEDULE

Experimental Department Supervisors' Views on the Value of the Training Programme

(8) Can you remember any parts which were a waste of time or definitely harmful?

(9) What did you think of the role-playing? (Did you take part in any?)

(10) Do you think there were any things that should have been discussed which weren't?

(11) Do you think it was a good idea to try and get some of yourselves to take charge of leading the groups?

(12) Do you think the groups were better when they were led by some of the managers rather than the foremen and supervisors?

(6) Do you think that your relationships with your fellow supervisors have been affected in any way—either for the better or the worse?

(13) Do you think the other people in your group felt differently about the conferences in any way? Were they more useful to them?

(14) Do you think that considering the time involved the conferences were worthwhile from the Firm's point of view?

SUMMARY OF STATISTICAL DATA

Job Satisfaction Questionnaire
 (1) The "overall" satisfaction scale
 Mean Score on First Survey
 Mean Score on First Survey

Experimental group men
 "On the whole I like it" -0.94
 scale units
 The experimental group of men are significantly less satisfied ($p < .01$)

Control group women
 "On the whole I like it" -0.111
 scale units
 Experimental group women
 "On the whole I like it" -0.48
 scale units
 The experimental group of women are significantly less satisfied ($p < .01$)

Control group men
 "On the whole I like it" -0.31
 scale units
 Experimental group men
 "On the whole I like it" -0.387
 scale units
 The change in the control group is obviously not significant.

The correlation between the answers on the First and Second Survey for 30 of the men in the experimental group was .81.
 The correlation between the answers on the First and Second Survey for 30 of the women in the experimental group was .81.
 The experimental group of men showed an improvement of all the men in the experimental group is significant ($p < .01$). But the improvement in the group of 30 identified cases is not significant ($p > .5$).

Control group women
 "On the whole I like it" +0.033
 scale units
 Experimental group women
 "On the whole I like it" -0.427
 scale units
 The correlation between the answers on the First and Second Survey for 33 of the women in the experimental group was .81.

The correlation between the answers on the First and Second Survey for 33 of the men in the experimental group was .81.
 The correlation between the answers on the First and Second Survey for 33 of the women in the experimental group was .81.
 The experimental group of men showed an improvement of all the men in the experimental group is significant ($p < .01$). But the improvement in the group of 30 identified cases is not significant ($p > .5$).

Job satisfaction at: Length of service:
 92 unskilled and semi-skilled men
 176 unskilled and semi-skilled women
 76 semi-skilled women (Second group)
 72 male office workers
 103 female office workers

Any other points

Coverage	N
70.2%	171
37%	156
62%	81
32%	32

Coverage	N
54%	113
40.6%	117

APPENDIX V

SUMMARY OF STATISTICAL DATA

Job Satisfaction Questionnaire:

(i) The "overall" satisfaction Scale

		Mean Score on First Survey	S.D.	N	Coverage
Control groups men	" On the whole I like it "	-0.196 scale units	2.16 scale units	82	73%
Experimental groups men ...	" On the whole I like it "	-0.94 scale units	2.04 scale units	63	58%

Therefore the experimental group of men are significantly less satisfied ($p < .04$).

		Mean Score on First Survey	S.D.	N	Coverage
Control group women	" On the whole I like it "	-0.111 scale units	1.48 scale units	171	70.5%
Experimental group women ...	" On the whole I like it "	-0.48 scale units	1.47 scale units	196	57%

Therefore the experimental group of women are significantly less satisfied ($p < .01$).

		Mean Score on Second Survey	S.D.	N	Coverage
Control group men	" On the whole I like it "	-0.21	1.80	81	65%
Experimental group men	" On the whole I like it "	-0.385	1.81	52	55%

The change in the control group is obviously not significant.

The correlation between the answers on the First and Second Survey for 30 of the men in the experimental group was .61.

Therefore, the apparent improvement of all the men in the experimental group is significant ($p < .02$). But the improvement in the group of 30 identified cases is not significant ($p > .8$).

		Mean Score on Second Survey	S.D.	N	Coverage
Control group women	" On the whole I like it "	+0.053	1.31	113	54%
Experimental group women ...	" On the whole I like it "	-0.427	1.48	117	40.6%

The correlation between the answers on the First and Second survey for 63 of the women in the experimental group was .45.

Therefore both the experimental and the control groups of women showed no significant change ($p > .19$).

(ii) Miscellaneous correlations of "overall satisfaction" with other variables:

Job satisfaction vs: Length of service:

			S.E.
98 unskilled and semi-skilled men			$r = +.24 \pm .10$
176 unskilled and semi-skilled women			$r = +.10 \pm .07$
76 semi-skilled women (Second group)			$r = +.31 \pm .11$
29 male office workers			$r = +.06 \pm .19$
108 female office workers			$r = +.25 \pm .09$

Job satisfaction vs: Age

41 unskilled and semi-skilled men ...	...	...	...	...	...	...	...	$r = +.31 \pm .15$
63 unskilled and semi-skilled men (Second group)	...	...	...	...	...	...	...	$r = +.15 \pm .13$
190 unskilled and semi-skilled women	...	...	...	...	...	...	...	$r = +.17 \pm .07$
82 semi-skilled women (Second group)	...	...	...	...	...	...	...	$r = +.31 \pm .11$
29 male office workers	...	...	...	...	...	...	...	$r = +.03 \pm .19$
108 female office workers	...	...	...	...	...	...	...	$r = +.34 \pm .09$

It is clear that, in this population, job satisfaction, as measured by the "overall scale" of the questionnaire used, is related positively but to a negligible degree with both age and length of service.

(iii) *Partial correlations:*

Job satisfaction vs: Length of service with age held constant

100 unskilled and semi-skilled men ...	...	...	...	...	...	...	...	$r = +.15 \pm .10$
175 unskilled and semi-skilled women	...	...	...	...	...	...	...	$r = +.05 \pm .08$
80 semi-skilled women (Second group)	...	...	...	...	...	...	...	$r = +.22 \pm .11$
29 male office workers	...	...	...	...	...	...	...	$r = +.07 \pm .19$
108 female office workers	...	...	...	...	...	...	...	$r = +.03 \pm .10$

Job satisfaction vs: Age, with length of service held constant

60 unskilled and semi-skilled men	...	...	...	...	...	...	...	$r = -.07 \pm .13$
40 semi-skilled men (Second group)	...	...	...	...	...	...	...	$r = +.22 \pm .16$
175 unskilled and semi-skilled women	...	...	...	...	...	...	...	$r = +.14 \pm .08$
80 semi-skilled women (Second group)	...	...	...	...	...	...	...	$r = +.16 \pm .11$
29 male office workers	...	...	...	...	...	...	...	$r = -.04 \pm .19$
108 female office workers	...	...	...	...	...	...	...	$r = +.24 \pm .09$

(iv) *Correlation between answers on First survey and on second survey nine months later ("overall" scale).*

Matching was done by choosing signed forms. The groups are therefore selected to some extent.

Selected from control groups 96 men (office and semi-skilled workers)	...	...	...	...	...	...	...	$r = +.85 \pm .06$
Selected from control groups 37 women (office and semi-skilled workers)	...	...	...	...	...	...	...	$r = +.65 \pm .12$
Selected from experimental group 30 unskilled and semi-skilled men	...	...	...	...	...	...	...	$r = +.61 \pm .15$
Selected from experimental group 63 unskilled and semi-skilled women	...	...	...	...	...	...	...	$r = +.45 \pm .11$

(v) *The 27 "Yes" and "No" Questions:*

Some statistical data relating to the answers to these questions on the first survey are given in an article "Raising Job Satisfaction. A Utilitarian Approach" *Handyside*. Occupational Psychology, April, 1953.

The scoring method adopted was to use the percentage of respondents giving the unfavourable answer to each question.

Comparisons between First and Second surveys have been made by using the formula for the significance of a difference between percentages, i.e. S.E. diff. of percentage =

$$\sqrt{\frac{p_1 q_1}{N_1} + \frac{p_2 q_2}{N_2}}$$

As, however, the percentages are not uncorrelated—i.e., it can be assumed that a substantial proportion of people gave the same answer on both occasions—this test underestimates the significance of differences.

In order to meet this difficulty a critical ratio of 1.65 has been accepted as statistically significant—i.e. the 10% level has been accepted instead of the 5% level.

Of the differences shown in the text of this report as significant

- 1 is significant at the 10% level (by the formula which under-estimates)
- 2 are significant at the 7% level (by the formula which under-estimates)
- 7 are significant at the 5% level or better (by the formula which under-estimates).

Differences rejected as not significant could have arisen by chance at least once in every 10 cases.

This is rather an arbitrary method of dealing with the problem, but the calculation of the correlations in each case would have been exceedingly difficult because of the difficulties of matching first and second replies by the same individual.

As the trends are in the same direction in all cases, the argument from the single instance is much strengthened by the supporting evidence from other questions.

Attitude Scales Completed by the Supervisors.

Details of the reliability and scoring of these scales are given in an article "The Evaluation of Human Relations Training for Supervisors," P. F. C. Castle, Occupational Psychology, October, 1952.

The mean error score for the 40 supervisors in the experimental group was:

	<i>Mean</i>	<i>Standard Deviation</i>
At the outset of the course	6.20	3.53
Approximately 12 weeks later	5.20	3.16
Correlation between first and second scores was .634.		

But control groups of supervisors obtain an improvement of approximately 0.5 errors merely by doing the scales one after the other (see Castle's article). Therefore the improvement in the experimental group was 0.5 errors greater than controls.

By the formula for the significance of a difference between correlated means this gives a critical ratio of 1.08. Therefore the improvement is not significant ($p > .28$).

See, however, the body of the text for the statement that one of the four discussion groups produced a highly significant improvement.

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