

ATTENDANCE IN FOUR TEXTILE MILLS IN PHILADELPHIA

BY

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PREFACE

THIS study was started in connection with the standardization of records at one of the textile plants with no intention of using the data for publication. The inclusion of other plants and a continuous record over a considerable period of time gave to the conclusions with regard to attendance, facts which seemed to be of wider general interest than that of the personnel of the plants involved.

No attention is given to methods of reducing absence. The emphasis in the study is upon ascertaining the extent and amount of lost time. The variation in attendance in its relation to production is considered with a view to determining the effect of the fluctuations from time to time in planning and routing work.

Especial acknowledgement is due to Beatrice Wood, Elizabeth Lundy and Elizabeth Lockwood for the work of calculation and preparation of tables; to Marjorie Crossingham and Harold Denison for the drafting of charts; to Miriam Hussey for help with all parts of the study as well as for reading and revision of the manuscript.

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INTRODUCTION

IN discussing the turnover of factory labor, Professor Slichter took as his fundamental thesis the "neglected truism that a definite plan and specific responsibility for creating and executing the plan are as necessary in dealing with labor as in controlling manufacturing operations."¹ There is still need for stressing the place of analysis of labor data in conjunction with central control over operations.

From the point of view of planning manufacturing operations, irregularity of attendance is frequently of as great an importance as terminations of employment. The problem has received less attention, because the effects of lost time are less immediate than those of final exits. Considered as a question of cost, breaks in employment due to absence are, in many cases, of as much importance to plants as are breaks in employment due to turnover. Because the loss is distributed, it is often given little attention. There are fewer estimates available concerning lost time than can be cited for turnover. It is not claimed that absences should be reduced to a minimum. Some absences are necessary in order that employees may attend to their duties as citizens, and as members of families; some absence for rest is desirable and, if taken in time, it probably shortens the length of individual absence for actual sickness. How great is the extent of absence for these reasons can be judged only in terms of the type of operation and the usual experiences of plant managers who have worked in the direction of preventing the causes of irregular attendance. In many ways the matter of attendance of employees

in industrial establishments is bound up with regularity of employment, with labor turnover and with plant discipline and control. Where work is irregular less stress can be put upon the desirability of employees reducing all unnecessary gaps in attendance. In recent years attention to the problem of lost time has come mainly through its effect upon turnover—an approach which has importance but which is of less significance than the question of planning production. The stress upon the effect of preventive measures in connection with turnover has meant that the attendance organization was built up at a time when production problems were most pressing and labor shortage was at its maximum. The seasonal variation in absenteeism and the actual cost of lost time in the aggregate have been less a motive than the retaining of employees in the organization. An important aspect of the problem is regularity of work and its relation to stabilization of production.

SHOP DISCIPLINE FORMERLY CONTROLLED BY WORKERS

In the early years of modern factory organization, labor turnover and attendance were controlled by the shop workmen and only slowly taken over as a function by the management. Even at the time Babbage wrote, in 1828, new employees paid a fine to reimburse the older workers for the time devoted to initiating them into the system, new to them, of the shop. He says:

It is usual in many workshops, that, on the first entrance of a new journeyman, he shall pay a small fine to the rest of the men. It is clearly unjust to insist upon this payment; and when it is spent in

¹ Slichter, Sumner H., *The Turnover of Factory Labor*. Preface, p. VIII.

drinking, which is, unfortunately, too often the case, it is injurious. The reason assigned for the demand is, that the new comer will require some instruction in the habits of the shop, and in the places of the different tools, and will thus waste the time of some of his companions until he is instructed. If this fine were added to a fund, managed by the workmen of the establishment, and divided at given periods, or destined for their relief in sickness, it would be less objectionable, since its tendency would be to check the too frequent change of the men from one shop to another. But it ought, at all events, not to be compulsory; and the advantages to be derived from the fund to which the workman is invited to subscribe, ought to be his sole inducement.²

More serious was the question of attendance. Workers strolled in and out in ways which seemed to the methodical Wedgwood to be lazy and shiftless. Manufacturers started the practice of ringing bells, tooting horns and later blowing whistles to signal the time of starting. Smiles describes vividly how "the potters had been summoned to their labors by sounding a blast on a cow's horn." The sound did not travel very far; and the workmen used to loiter lazily into the works just as they pleased, everything apparently going on in a very indifferent manner. But Wedgwood adopted a better plan. Between 1760 and 1770, he erected a cupola containing a loud bell, the sound of which travelled very far; and thus the working people were called more rapidly together.

One of Wedgwood's principal difficulties, as with all employers in those days, was the management and discipline of his workmen. They were irregular in their habits, disposed to be lazy, and there was a consequent lack of order in the work-rooms.³

² Charles Babbage, *Economy of Machinery*, 1828, p. 213.

³ Samuel Smiles, *Josiah Wedgwood*, p. 46.

When the Manchester canal was being extended, the Duke of Bridgewater provided dwellings for the colliery workmen. He used fines as well as awards for attendances.

The steadiest workmen were allowed to occupy the best and pleasantest houses as a reward for their good conduct.

Still irregularity continued especially on Mondays.

In order to put a stop to idle Mondays, he imposed a fine of half-a-crown on any workman who did not go down the pit at the usual hour on that morning.⁴

METHODS FOR PREVENTION OF ABSENCE

General use of clocks and the shortening of hours have helped to reduce the problem of tardiness which may now be regarded as a matter of individual shop discipline rather than a problem of general importance. Payment of bonuses, and award of prizes is still used to stimulate regularity in attendance. A few companies grant vacations with pay to employees with little lost time. The tendency of writers has been to raise objections to the attendance bonus, which is a reward of some percentage of wage for attendance over a predetermined period. Diminishing absence by granting vacations on the basis of attendance has been effective in some cases. The practice of fining employees is rather generally condemned. Mr. Hackett in an article on absenteeism writes:

The imposition of penalties appears to be an attack upon the problem of absenteeism from the wrong end. Workers, whose bonus is commuted or who are fined for absence, feel that their obligation is discharged and there is no further incentive to be regular. The wage loss incurred by

⁴ Samuel Smiles, *Lives of the Engineers*, London, 1862. Vol. I, p. 407.

absence is in the nature of a fine and the further loss of a small percentage is not much of a deterrent. If it is a question between rewards for attendance or penalties for absence, the former is to be preferred.⁵

From the latter statement one may gather that Mr. Hackett does not accept the attendance bonus plan unqualifiedly. He holds that:

Several valid objections exist against the use of the attendance bonus. Wages are paid for attendance and the doling out of an additional sum is, in effect, an acknowledgement that the rate is insufficient to keep a man on the job. But, whether logical or not, a man who loses his bonus for two or three months because of a day's unavoidable absence feels he has a grievance and is careless for the remainder of the bonus period. Thus the bonus introduces additional friction.⁵

Only recently has absenteeism been approached from the point of view of prevention of the main causes of absence. Realizing the effect of lost time in lowering efficiency, companies have introduced follow-up work and a general study of causes of absence with a view to dealing constructively with such causes as are preventable. The development of industrial medical work has been especially beneficial in the reduction of time lost on account of illness. Where home visiting is done tactlessly, or where the system is rigidly superimposed, workers have objected to the visiting. The follow-up of employees and the care of health furnishes a record of sickness and accidents and makes possible some attention in the home to those absent for health causes. In connection with this work, records of absence have been found an aid in encouraging regularity as well as a means of stabilizing the planning of production.

⁵ Hackett, J. D., *Absenteeism: A Quantitative Study*, p. 5.

The following notice, sent by the Hood Rubber Company to its foremen and department heads in introducing their absentee visiting work, shows in general the way such work is carried on:

We are about to make a more extensive study of the absentee problem throughout the entire plant and must ask for coöperation on the part of the foreman in furnishing prompt reports of all employees absent. We have drawn up for this purpose a daily absentee list, a sample of which is attached, together with instructions for its use.

If these instructions are carefully followed we should have at the employment department before 9 A.M. each day, a list of all your absent employees and will be in a position to determine which cases it will be policy for us to look up on that day, the results of all investigations being reported to you.

The plan suggested above is typical of that used in the four mills reported in this study.

LIMITS OF THIS STUDY

The facts in the study are based upon the experience of four textile plants. All firms use trained nurses to visit employees in their homes, after the first day of absence, unless permission by the foreman has been given for a definite period of non-attendance. After the first visit, calls are made by the nurse at intervals, dependent upon the reason for non-reporting. When employees are ill they may have the services of plant physicians or of their own physician according to their preference.

The plants differ in size and somewhat in variety of occupations. Firms A and B are old concerns employing respectively about twelve hundred and eight hundred employees. Firm C is a small plant with fewer types of processes. Firm D is a new plant started in 1922. It was thus building

up an organization during the period of reporting. All plants employ both men and women, in many cases hiring all members of the family, to which practice is due in part the attendance problem. Married women are absent for household duties as well as for cases of sickness in the family. Illness or death frequently means the non-attendance at work of two or three members of the home. The industries are particularly interesting since they give an opportunity to compare the attendance of men and women employed, in many cases on similar occupations at identical piece rates.

Plants A and B have had facilities for noon luncheon, rest rooms and athletic activities during the whole period of the study. More recently C has been equipped with a cafeteria and rest room. The plants are, in this respect, exceptionally well equipped with service facilities.

In the data used in connection with

this study, tardiness will not be considered, the whole emphasis of the study being upon longer absences. Absenteeism is used to include all cases of temporary separation from work when the plant is in operation. Cases where the worker reports late are, therefore, regarded as full time. Employees reporting at noon are reported absent. Whenever the whole plant was closed for a day or more the fact is indicated, though employees are not counted as absent. This is not wholly consistent since "no work" where it refers to a few workers is classified as "Reasons due to production." Occasionally a worker leaves without notice. In such cases where the reason for lost time is not known and a place is being held for the employee, he is regarded as absent until the nurse reports "will not return," when the name appears on the turnover record instead of on the absence report.

I—CLASSIFICATION OF REASONS FOR ABSENCE

There is no list of reasons for absence generally agreed upon. Many of the summary classifications now in use show the persistence of war influences. Nor is it easy to classify absences into a few reasons that are under all circumstances exclusive of others. From one point of view, illness due to hot weather may be regarded as "physical reasons," from another, "weather conditions." Besides, causes for absence are not only closely interwoven but are frequently dependent upon each other even in the mind of the worker.

In this report it has not been assumed that any particular reasons for absence were inherent in the plant or local situation. Specific reasons have been reported in detail while a summarized grouping has been undertaken only to bring out some of the most important causes.

REPORTING OF ABSENCE

The first step in preventing irregular attendance is the recording and analysis of adequate information concerning causes of absence. Students of this subject have said:

The record system in itself alone will prove to be an effective method of reducing

tardiness and absences. It will yield weekly reports that should prove effective by stimulating departmental rivalry in the reduction of absences and tardiness. The weekly reports will also reveal the weak spots in the organization and will show those departments that have the highest absent and tardy rates.

In collecting information the Department has proceeded on the same basis as was used in turnover reporting, so as to have reasons submitted in complete detail. Since no list of reasons was found comprehensive enough for employment managers to be certain of the choice of major reasons, the causes given in detail by plants are classified into eight main groups which, for the time being, must be regarded as tentative.

The following sample shows the form used by plants and the kind of items included in the daily absence report to the Department.

The classification and code used for tabulation is given here in full, in order that the specific reasons may be added to by the experiences of others. Continued use may show that some items recur too infrequently to warrant separate listing. At the present time, there is not enough data concerning

DAILY ABSENCE REPORT

DATE _____

B NAME	No.	SEX	DEPARTMENT	OCCUPATION	REASON FOR ABSENCES	No. DAYS ABSENT	No. OF VISITS
B. McDuff . . .	4211	M	Mech.	Electrician	Illness at home	3½	1
E. Shearer . . .	1172	F	Winding	Silk winder	Trouble at home	2	1
E. Wells	246	F	Winding	Cotton winder	Child in accident	5½	2
N. Roberts . . .	2209	M	Cleaner	Helper	Sunburn—permission	2	1
M. Murphy . . .	2478	F	Cleaning	Cleaner	Ill—(Dr. H.)	21	6 (V D)
F. Boyd	3249	M	N. W.	Gasser	No one home	1	1
M. Brady	3467	F	Coning	Coner	Moving	3	1
K. Jones	3542	F	Weaving	Weaver	Ill	4	2

the frequency of the different causes to warrant anyone in selecting the outstanding items given under specific reasons.

The following shows the grouping of major and minor causes for absence:

CLASSIFICATIONS OF REASONS FOR
ABSENCE

<i>Reason</i>	<i>Code Number</i>
1. REASONS CONNECTED WITH PRODUCTION	100
<i>Specific Reasons</i>	
No work.....	101
Lack of material.....	102
Breakdown in equipment.....	103
Plant operating on part time.....	104
Work held up by previous operation.....	105
Sufficient pay from overtime.....	106
Suspended.....	107
Did not know there was work.....	108
Unadjusted grievance.....	109
Will not return.....	110
2 REASONS CONNECTED WITH FAMILY AFFAIRS	200
<i>Specific Reasons</i>	
Illness in family.....	201
Death in family.....	202
Funeral.....	203
Wedding.....	204
Household cares.....	205
Moving.....	206
Family business.....	207
Visits of relatives or return of family (away) or entertaining company.....	208
3. REASONS CONNECTED WITH PERSONAL AFFAIRS	300
<i>Specific Reasons</i>	
.....	301
.....	302
Arrested or in jail.....	303
To be married.....	304
Continuation school.....	305
Shopping.....	306
Personal business.....	307
Out of town.....	308
Excursion.....	309
Alcohol.....	310
Tired from party or stiff from playing ball.....	311
Sunburned from vacation.....	312
Overslept.....	313
Missed car.....	314
Did not want to work, or taking a holiday, or playing "truant"....	315
4. REASONS CONNECTED WITH COMMUNITY AFFAIRS	400
<i>Specific Reasons</i>	
.....	401
.....	402
.....	403
Election.....	404
Jury, witness or militia duty.....	405
.....	406
Paying income tax.....	407
.....	408
Church, lodge and foreign celebrations, legal holidays.....	409
Transportation difficulties due to strike, etc.....	410
Transportation difficulties not otherwise specified.....	411
5. PHYSICAL REASONS	500
<i>Specific Reasons</i>	
Illness (all cases due to heat are to be specified).....	501
Illness due to heat.....	502
Tired from night or Sunday work.....	503
Accidents.....	504
General care of health (dentist, oculist, time taken for rest).....	505
6. REASONS CONNECTED WITH CLIMATE AND WEATHER	600
<i>Specific Reasons</i>	
Storm.....	601
No shoes or rain clothes.....	602
Too hot to work.....	603
Transportation difficulties due to weather.....	610
7. MISCELLANEOUS REASONS	700
<i>Specific Reasons</i>	
Leave of absence (not otherwise specified).....	701
Excused (not otherwise specified) ..	702
Not excused.....	703
.....	704
.....	705
Vacation (not otherwise specified)..	709
8. REPORT LACKING	800

It will be seen that the reasons for absences are grouped into eight main divisions:

- (1) Reasons connected with Production.
- (2) Reasons connected with Family affairs.
- (3) Reasons connected with Personal affairs.
- (4) Reasons connected with Community affairs.

- (5) Physical reasons.
- (6) Reasons connected with Climate and Weather.
- (7) Miscellaneous reasons.
- (8) Report lacking.

Under production, fall specific reasons which should be analyzed whenever the group reporting is large, such as "no work," "unadjusted grievances," and others reported as breakdown in equipment, lack of material, part-time work and suspensions for infringement of rules.

The reasons connected with outside affairs are large and important ones, and are divided into three Major Reasons, i.e., Family Affairs, Community Affairs, and Personal Affairs. Under the first of these, illness in family, death in family and household cares make the most important causes—reasons which are especially important where women are employed. Quarantine, classed under illness in family, occurs quite frequently, often keeping three or four members of a family away from work.

Community reasons are mainly civic duties, with the exception of the important item under transportation. Personal reasons such as "overslept," "missed car," "shopping," and "alcohol" occur frequently. The innocent-looking item "stiff from playing ball"

often becomes black eye, broken nose, etc., when reported on the daily sheet.

"Physical reasons" are by far the most important cause of lost time. This heading includes items due to ill-health, fatigue, accidents, etc.

Reasons connected with the weather may be storms which delay cars, rainy weather for which workers are unsupplied with suitable protective clothing, etc. In some cases women stay out on the first fine day in the week to do family washing, a cause due to fine weather, but which is put under "household cares."

Miscellaneous reasons include many which in time can be more precisely reported. "Permission" and "leave of absence" given by the foreman may on the whole be assumed as due to adequate causes. It would improve the record if the cause as well as the "permission" could be recorded. Vacation is grouped here when it refers to a period of a week or more.

Some of the difficulties of nurses in making home visits are reflected in the unknown items, "could not get in," "no one home when called," "could not make understand," "wrong address," "family moved," etc.

The importance of these major reasons will be discussed in the chapter dealing with causes of absence.

II—EXTENT OF ABSENTEEISM

The importance of lost time can be gauged somewhat by the size of this item in comparison with the days which the employees could have worked. Times when the plant was wholly closed may be considered as part of an unemployment problem. At the outset then, the questions are: what is the extent, and what are the causes of broken employment?

The amount of absenteeism has been computed by comparing lost time with the number of employees on the payroll multiplied by the number of days on which the plant was in operation. For the year 1920 in firm A it will be seen (see Chart I, p. 199) that the percentage of man-days lost ranges from 3.2 per cent in October to 7.2 per cent in March and April. Again in 1921

firm A has its lowest rate in October, but has its high rate in February and July—ranging from 3.2 per cent in October to 6.3 per cent in February. Referring to Chart I, it will be seen that two high peaks of absenteeism occur in each year—one in the winter, the other in the summer vacation period. Particular attention is called to the parallelism in movement between the monthly curves of firm A and firm B. While firm B tends to have a higher rate of man-days lost, there is only one month, October, 1921, when the two curves move in opposite directions. For 1922, both curves tend to be somewhat lower with less marked monthly fluctuations. From the table it may be noted that the low month of 1922 was 3.7 per cent in June. Judging from the previous year it is likely that a rate lower than that may be reached in October. The low point of B was 3.5 in April.

Considering plant A, the one with the lowest absence, one finds that the percentage of absence tends to be lower each year from 1920 to 1922. The high points recur in the same months. It would be safe to conclude from these figures that attendance is affected by cold and warm weather though in wholly different degrees. Cold weather increases the time lost by women more than that by men.

Firm C, being a small plant, has its absence-percentage rate considerably affected by the loss of time of a few persons; consequently, the wide upward and downward swings of the absence curve for this plant may be explained by the low base (the dotted curve on Chart I). While the range of movement is, therefore, greater, the direction of movement is identical with that for the two firms already discussed.

In 1922, the months of high absence correspond with the two previous

years. Again the high months are found in February, March and July. As in 1921, plant A tends to show a lower absence rate, while the small plants, C and D, fluctuate widely. The curves in Chart I, as well as the monthly figures printed in the table on that chart, show the consistent reappearance of two high peaks of absence each year.

QUARTERLY COMPARISON OF ABSENCE

Table 1 shows a quarterly grouping of time lost. In all cases the percentage of lost time is higher in winter. The lowest rates appear regularly in the October–December quarter. It will be seen that plants A and B must count upon absences in each quarter ranging from 4 to 6 per cent of the possible working days. In firm C, the single difference in the resemblances already noted for A and B is in the October–December quarter—in the case of this firm unmistakably higher than the April–June quarter.

Of course, any variations in the way in which the factory is running will affect the percentage of variation from month to month. The proportion of men and women employed causes some variation in the season in which absence is highest.

Considered in the aggregate, the 5.5 per cent of average yearly absence in 1920, at plant A, meant 5,287 days lost by men and 8,105 days lost by women—a total of 13,392 days lost by all employees during the year. From the point of view of the individual, this would mean slightly less than a day and a quarter of absence each month for every employee in the plant. For the individual this would be negligible if it actually represented absences distributed in this way. As a matter of fact it does not represent distributed absence but rather continuous attend-

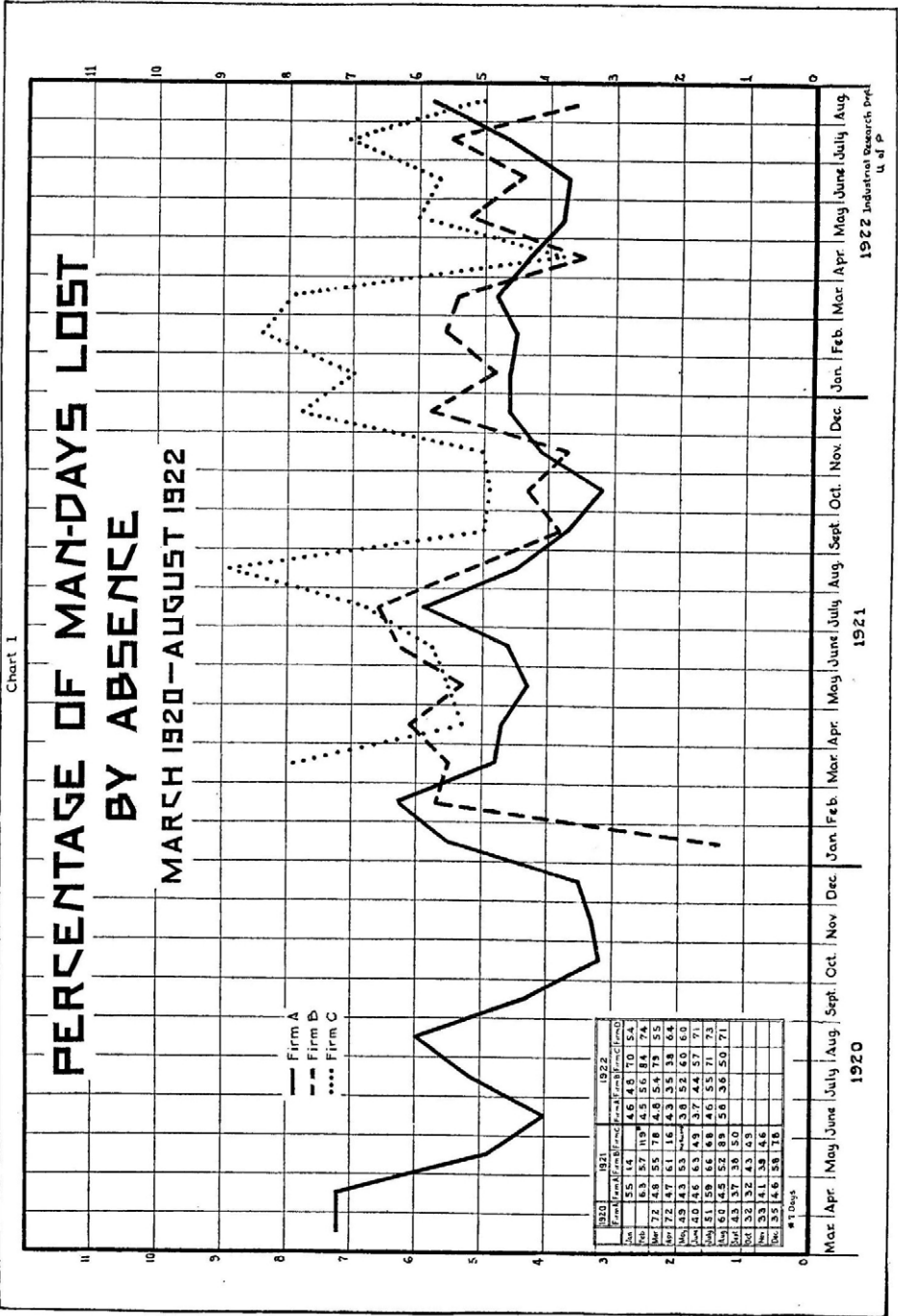


TABLE 1—QUARTERLY ABSENCE BY PLANTS

YEAR	FIRM	JANUARY-MARCH			APRIL-JUNE			JULY-SEPTEMBER			OCTOBER-DECEMBER		
		Man-Days Work	Man-Days Lost	Per Cent Days Lost	Man-Days Work	Man-Days Lost	Per Cent Days Lost	Man-Days Work	Man-Days Lost	Per Cent Days Lost	Man-Days Work	Man-Days Lost	Per Cent Days Lost
1920	Firm A	*31,968	2,290	7.2	88,835	4,815	5.4	76,274	3,947	5.2	69,938	2,340	3.3
	Firm A	83,663	4,615	5.5	91,330	4,120	4.5	86,670	4,094	4.7	105,754	4,198	4.0
	Firm B	25,700	1,076	4.2	26,159	1,541	5.9	25,708	1,382	5.2	32,082	1,494	4.7
	Firm C	†1,797	155	8.6	‡3,132	178	5.7	7,050	481	6.8	7,970	472	5.9
1922	Firm A	101,989	4,734	4.6	98,899	3,864	3.9	§61,166	3,159	5.2	.....	.....	.....
	Firm B	32,024	1,686	5.3	34,556	1,517	4.4	§22,024	1,006	4.6	.....	.....	.....
	Firm C	6,934	536	7.7	8,276	451	5.4	§5,408	340	6.3	.....	.....	.....
	Firm D	6,929	426	6.1	8,534	559	6.6	§5,920	422	7.1	.....	.....	.....

* March only.
 † February and March.
 ‡ May omitted.
 § July and August.

TABLE 2—COMPARISON OF ATTENDANCE OF MEN AND WOMEN

MARCH-AUGUST, 1922								
MONTH	FIRM A		FIRM B		FIRM C		FIRM D	
	Percentage of Absence		Percentage of Absence		Percentage of Absence		Percentage of Absence	
	M	F	M	F	M	F	M	F
March.....	3.5	6.4	3.7	6.7	7.7	8.0	1.0	7.2
April.....	3.8	4.9	3.4	3.5	3.1	4.3	4.9	7.0
May.....	2.5	5.0	4.2	5.8	6.1	6.0	2.9	7.0
June.....	2.4	4.9	2.7	5.6	2.5	7.1	4.6	7.9
July.....	2.6	6.5	3.8	6.5	2.4	8.0	5.1	8.0
August.....	4.1	7.5	2.8	4.0	4.8	5.1	3.8	8.2

ance for a large part of the force and an enormous aggregate absence for a restricted number of employees.

EXTENT OF ABSENTEEISM AMONG MEN AND WOMEN

While the number of men and women absent are separately recorded at all plants, it was not possible to get the number on the payroll separate before March, 1922. Taking the period for which data are available, it will be seen that absence for women is higher, in

many cases more than double the percentage of absence for men. The months of highest absence vary also for the sexes in these mills. The men are less affected by the winter months. The reasons for absence show also the many household duties which interfere with the occupations of women, especially women with homes.

Summarizing the period of March-August, 1922, one may say that all plants must count upon 6 to 8 per cent of lost days by women out of the total

TABLE 3—ANNUAL TURNOVER PERCENTAGE BY MONTHS

MONTH	1921			1922			
	FIRM A	FIRM B	FIRM C	FIRM A	FIRM B	FIRM C	FIRM D
January.....	48.0	12.9	0.0	46.4	25.7	22.6	30.4
February.....	87.0	109.1	113.2	48.8	22.5	32.1	77.7
March.....	99.7	192.1	309.6	37.8	34.4	10.5	106.2
April.....	57.6	63.9	144.0	89.1	49.3	77.7	158.4
May.....	47.9	60.9	161.5	38.2	106.4	105.6	68.3
June.....	63.3	69.3	113.1	45.7	67.5	73.3	77.1
July.....	45.7	50.6	58.3	34.2	51.9	26.4	56.7
August.....	36.2	80.0	22.0	42.3	53.4	26.9	48.6
September.....	57.5	81.4	21.4	.....	.....	.....	.....
October.....	42.7	14.4	44.4	.....	.....	.....	.....
November.....	59.1	40.2	33.3	.....	.....	.....	.....
December.....	38.0	40.8	45.7	.....	.....	.....	.....

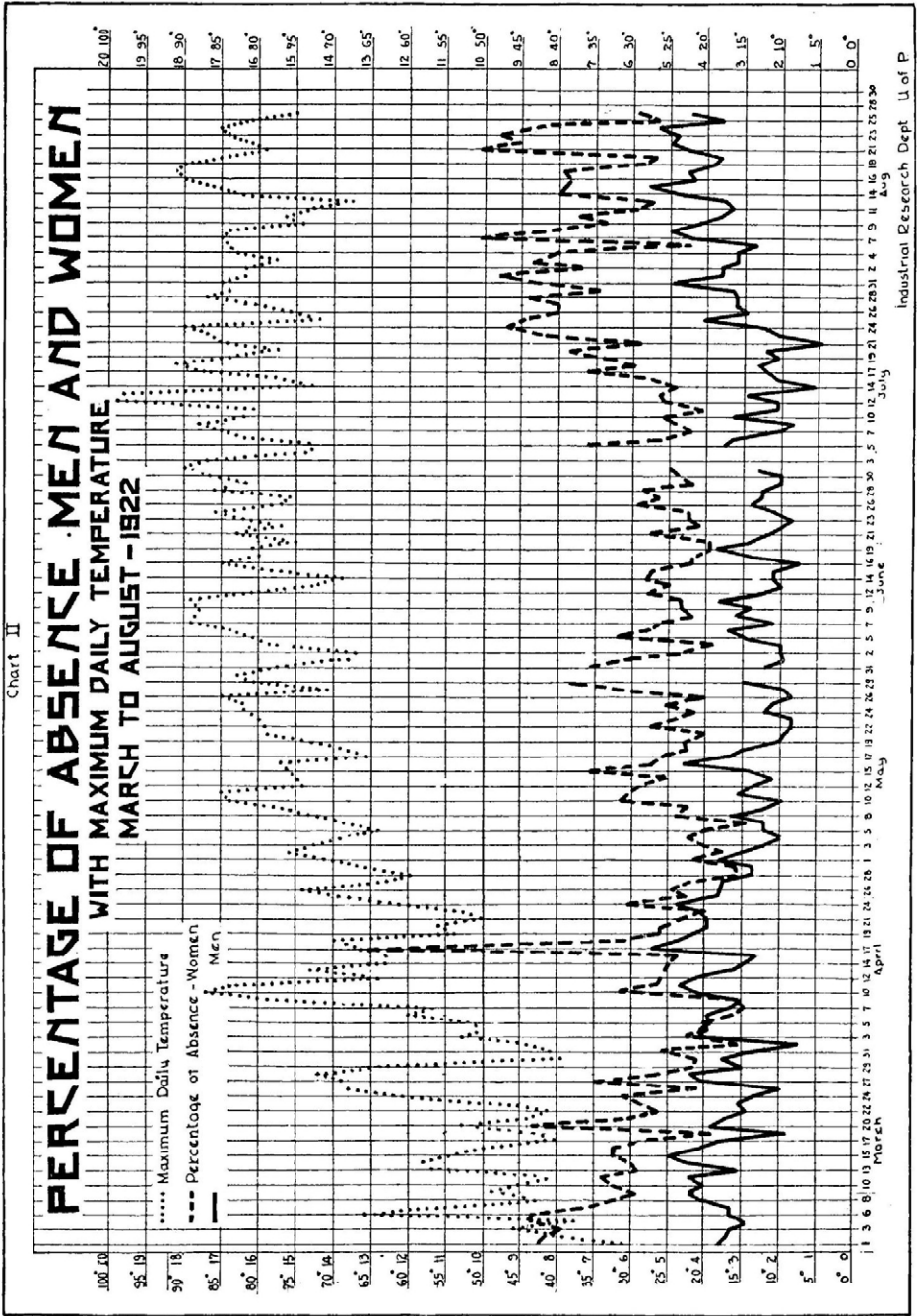


TABLE 4—MONTHLY TURNOVER PERCENTAGES ON AN ANNUAL BASIS BY SEX

MARCH—AUGUST, 1922

MONTH	FIRM A			FIRM B			FIRM C			FIRM D		
	Total Per cent	Male Per cent	Female Per cent	Total Per cent	Male Per cent	Female Per cent	Total Per cent	Male Per cent	Female Per cent	Total Per cent	Male Per cent	Female Per cent
March.....	37.8	31.1	46.1	34.4	12.7	52.2	10.5	0.0	16.7	106.2	0.0	148.1
April.....	89.1	148.9	25.2	49.3	57.4	42.5	77.7	92.3	69.6	158.4	150.0	162.2
May.....	38.2	32.1	44.2	106.4	44.4	151.1	103.6	60.0	127.1	68.3	0.0	90.3
June.....	45.7	24.1	67.5	67.5	31.7	90.7	73.3	30.8	91.3	77.1	37.5	88.9
July.....	34.2	25.6	43.1	51.9	12.6	77.5	26.4	0.0	38.7	56.7	68.6	53.1
August.....	42.3	34.5	50.2	53.4	19.8	74.5	27.0	28.6	26.1	48.6	33.3	53.6

possible working time. For men an allowance of 3 to 4 per cent is adequate. Since men and women are employed on identical operations at similar piece rates, the differences in attendance are important. Later comparison for this six-months period will make possible comparisons by occupations.

Turning to Chart II, p. 202, the lower solid line represents the percentage of man-days lost by men. Throughout the length of the solid black curve, there is a recurring peak on Mondays of each week with a pronounced downward movement in the succeeding days of the week. About the middle of the week there is a slight elevation, sometimes reaching to a distinct fluctuation, more often appearing only as a suggestion of rise in the general downward curve for the week. The highest Monday peak of the year occurs on April 17, Easter Monday. Toward the end of April, absence tends downward until about the middle of July, when percentages increase. The women's absence curve does not differ from the men's so much in general contour as in amount of absences. The curves are far apart during March and the early part of April. At the end of April and the early part of May the drop in the women's absence curve tends to bring the two together. The Monday peaks in the women's curve are very marked. In June the two curves tend to move farther apart, the curve for women rising much more rapidly than that for men.

RELATION OF ABSENTEEISM TO LABOR TURNOVER

Some interest attaches to the relation of absenteeism to labor turnover in these plants. The solid black line on Chart III represents monthly turnover for firm A. The curve increases until March, and from then tends downward

until the end of the year with slight upward fluctuations in June, September and November. In 1922, there is a high peak in April, while the other months run fairly uniformly.

The turnover curve for B varies more than that for A, though its markedly high peaks occur at the same time. For firm C the dotted curve tends to follow the general movement of firm A, except for the first six months, when this plant was building up a new organization. During that period the turnover was above 110 per cent for five months and reached 309 per cent in the month of March. D is in an unstable condition similar to that of C in the first half of the previous year. Its highest turnover was 158 per cent in April. Except in March, 1922, comparison of Chart III, p. 205, with the chart for absence, p. 199, shows that high turnover months are not high absence months.

In 1922, the turnover peaks are highest in April and May, months in which the absence rate is lowest. In one respect there is correspondence, firm A, the plant of lowest turnover, is also the plant of lowest absence. If it is true, as is frequently stated, that absence is "incipient turnover" then the absentee visiting at these plants must have already reduced the

amount of quitting, initiating in absence.

Even when one considers the turnover for men and women it cannot be said that the high turnover months are the high absentee months. For plant A the highest turnover for women occurs in June, for the three other plants in May, whereas the absences for women are highest in March and July.

EXTENT OF ABSENTEEISM BY DAYS OF WEEK

The average percentage of employees absent varies somewhat from day to day. To take care of the Monday absences the firm would have to carry a larger reserve than is needed on any other day of the week.

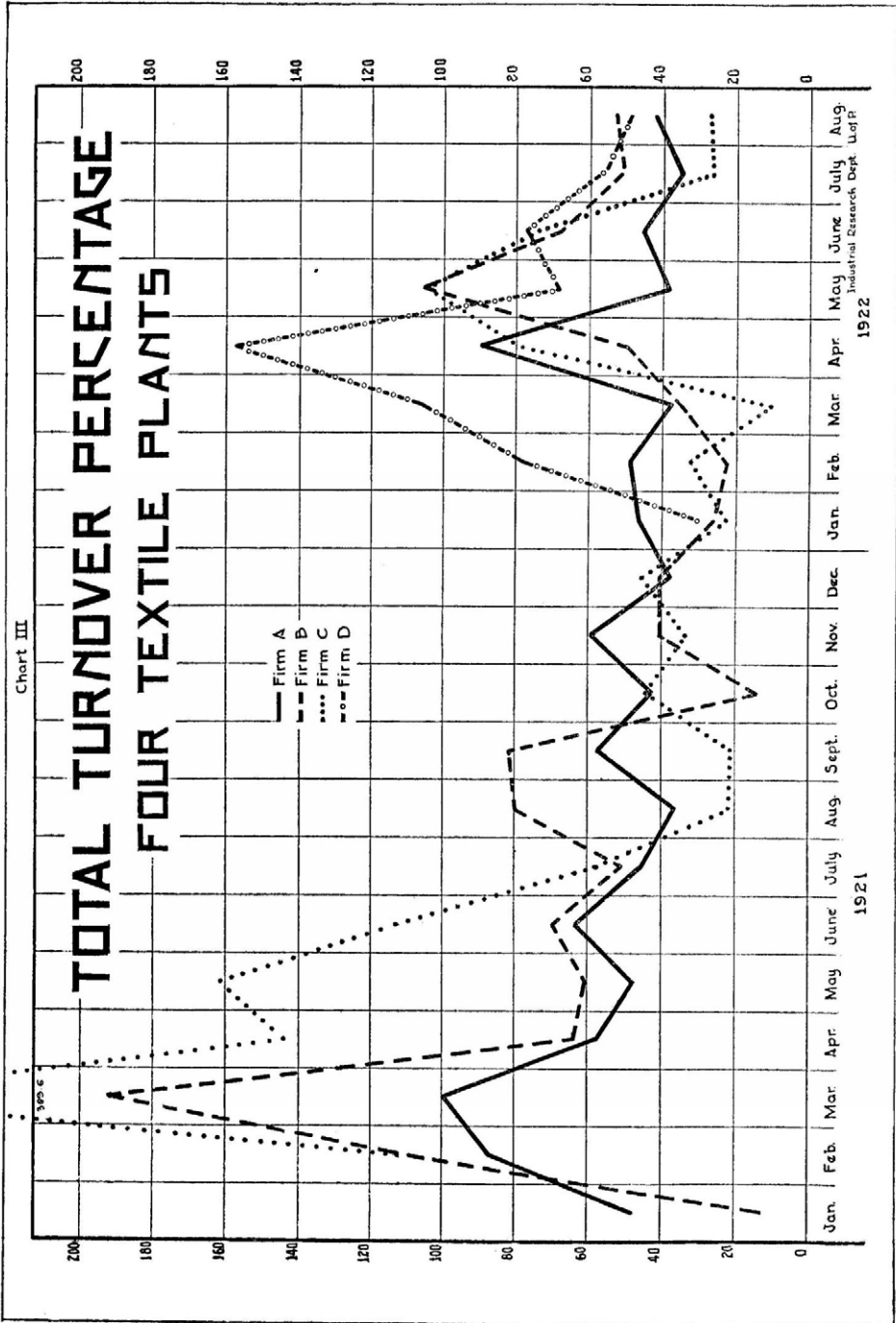
In the year 1921, firms A, B and C lost by absence a yearly rate of 4.7, 5.0 and 6.6 per cent of the potential working days.

Table 5 shows the absence by days of the week for each plant.

As Monday is highest in per cent of time lost, so Friday, pay day, is lowest. The low rate of Saturday cannot be compared with other days owing to the fact that plants are frequently closed on those days. It is interesting to note that the Saturday

TABLE 5—DAILY AVERAGE PERCENTAGE OF EMPLOYEES ABSENT

DAY OF WEEK	1920	1921			1922			
	FIRM A	FIRM A	FIRM B	FIRM C	FIRM A	FIRM B	FIRM C	FIRM D
Monday	5.7	5.4	6.3	8.6	5.3	5.7	8.1	8.1
Tuesday	5.2	5.0	5.6	7.5	4.7	5.7	5.8	6.6
Wednesday	5.0	4.7	5.1	6.6	4.6	4.7	6.1	6.6
Thursday	4.5	4.5	4.4	5.6	4.4	4.2	5.8	5.9
Friday	4.4	4.4	4.2	5.8	4.0	4.0	6.7	5.2
Saturday	4.7	4.1	4.3	5.6	3.9	3.7	6.5	6.4
All days	4.9	4.7	5.0	6.6	4.8	4.8	6.5	6.4



absence does not increase disproportionately during the summer months.

The quarterly absence table by days of the week shows that the Mon-

day absences are unimportant in the October-December quarter. In July-September the variation between the lowest day and Monday, the highest day, is often more than three per cent.

TABLE 6—COMPARISON OF AVERAGE PERCENTAGE OF EMPLOYEES ABSENT FROM WORK BY DAYS

YEAR	QUARTER	FIRM	DAYS OF THE WEEK						ALL DAYS
			Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	
1920	July-Sept.	Firm A	5.7	5.8	5.4	4.6	4.8	4.8	5.2
	Oct.-Dec.	Firm A	3.6	3.3	3.6	3.3	3.1	3.1	3.3
1921	Jan.-March	Firm A	6.8	5.7	5.7	5.5	5.2	4.6	5.6
		Firm B	6.1	4.9	4.7	3.8	3.7	2.2	4.3
		Firm C	11.7	9.2	7.6	8.1	5.8	13.2	8.7
	April-June	Firm A	5.1	4.3	4.3	4.4	4.3	4.4	4.4
		Firm B	7.5	6.4	5.9	5.1	4.9	5.3	5.8
		Firm C	6.1	7.0	5.2	5.0	4.4	6.2	5.6
	July-Sept.	Firm A	5.7	5.3	4.9	4.5	4.2	3.6	4.7
		Firm B	6.3	6.0	5.4	4.7	4.4	4.6	5.3
		Firm C	8.7	8.5	6.7	4.4	7.0	5.1	6.8
	Oct.-Dec.	Firm A	4.0	4.6	3.9	3.7	3.9	3.7	4.0
		Firm B	5.1	5.2	4.4	4.2	3.8	5.1	4.7
		Firm C	7.4	5.9	6.5	6.0	5.0	5.0	5.9
1922	Jan.-March	Firm A	5.3	4.8	4.6	4.5	4.3	4.3	4.6
		Firm B	6.3	6.1	5.6	5.0	5.1	4.2	5.4
		Firm C	10.1	6.8	7.3	7.7	6.8	7.7	7.7
		Firm D	7.8	6.1	6.1	5.0	4.7	7.1	6.1
	April-June	Firm A	4.8	4.1	4.1	3.7	3.4	3.3	3.9
		Firm B	5.1	5.4	4.6	4.3	3.6	3.3	4.4
		Firm C	7.2	4.8	5.3	4.4	4.7	5.5	5.4
		Firm D	7.9	6.9	6.6	6.2	5.4	5.3	6.4
	July-Aug.	Firm A	6.1	5.8	5.3	5.4	4.3	4.3	5.2
		Firm B	5.9	5.3	4.8	4.9	2.9	3.8	4.6
		Firm C	6.9	5.6	5.7	5.0	9.9	5.9	6.3
		Firm D	8.8	7.2	7.4	6.7	6.0	7.0	7.2

III—CAUSES OF ABSENTEEISM

It has already been shown that of the possible working days 5 to 6 per cent are lost by non-attendance. The causes for this loss are, therefore, important. Chart IV shows the reasons for lost time by months.

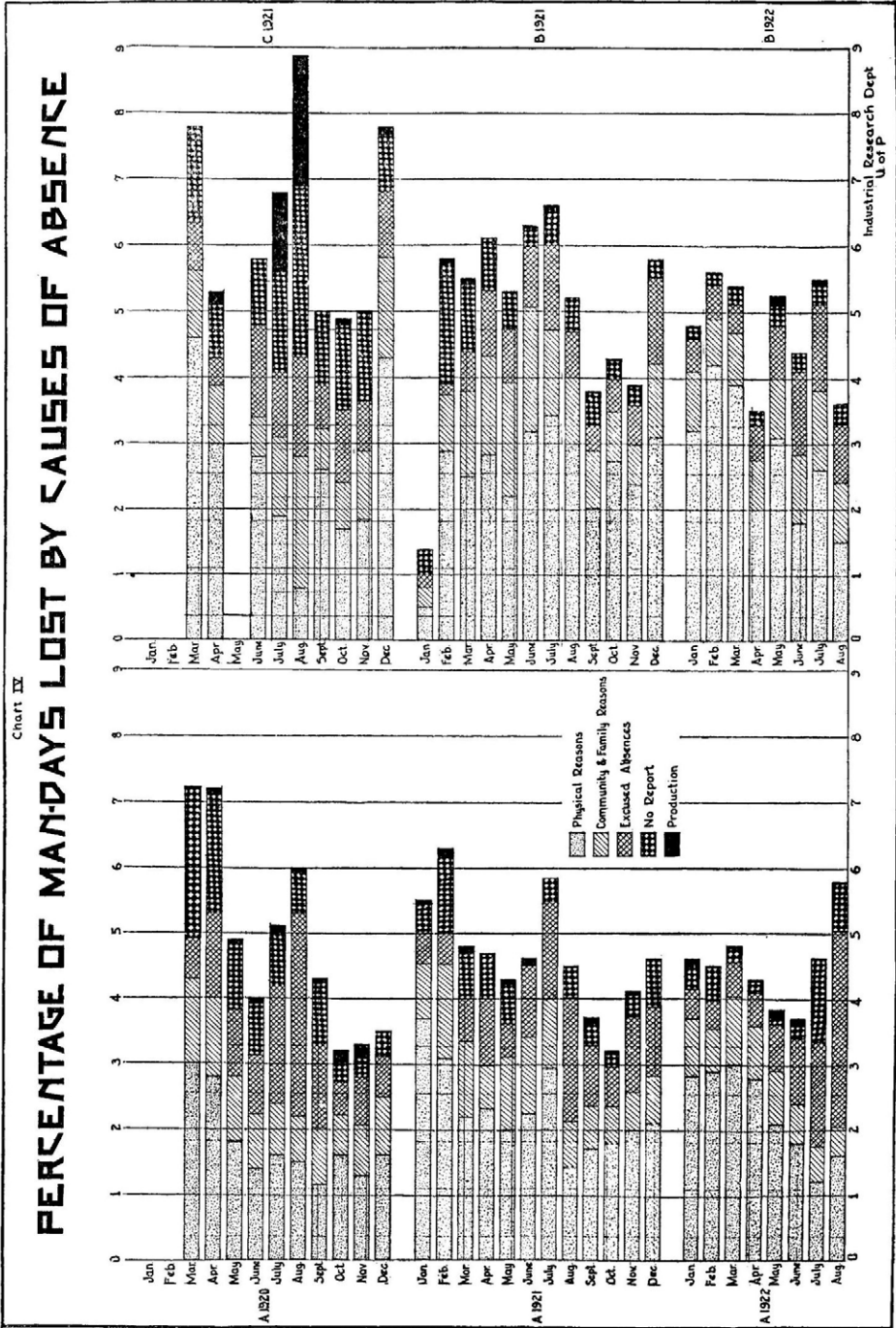
The first division of the cross-hatched bars represents the percentage of ab-

sence due to *physical reasons*. Ill-health accounts roughly for one-half of the total time lost. Next in importance are *family and community reasons*, under which about one-fifth of the absences fall. Personal reasons, including overslept, out of town, shopping and excursions, cover less than one-tenth of the total absence.

TABLE 7—CAUSES OF ABSENCE

REASON FOR ABSENCE	1921															
	FIRM A				FIRM B				FIRM C							
	Men	Women	Total	Per cent	Men	Women	Total	Per cent	Men	Women	Total	Per cent				
Production	65	103	168	1.3	46	106	152	0.9	7	13	20	0.4	51	26	77	6.0
Family	353	1,300	1,653	12.3	454	1,597	2,051	12.0	98	599	697	12.8	8	62	70	5.5
Personal	359	456	815	6.1	421	614	1,035	6.1	159	280	439	8.1	37	106	143	11.1
Community	0	0	0	0.0	41	47	88	0.5	11	28	39	0.7	0	3	3	0.2
Physical	2,053	2,895	4,948	36.9	3,203	5,140	8,343	48.9	600	2,228	2,828	51.9	147	368	515	40.1
Weather	0	0	0	0.0	3	4	7	0.1	0	4	4	0.1	0	0	0	0.0
Miscellaneous	1,379	1,707	3,146	23.5	1,495	1,874	3,369	19.8	183	506	779	14.3	75	120	195	15.2
No report	1,078	1,584	2,662	19.9	789	1,203	1,992	11.7	134	503	637	11.7	66	216	282	21.9
Total	5,287	8,105	13,392	100.0	6,452	10,585	17,037	100.0	1,192	4,251	5,443	100.0	384	901	1,285	100.0

REASON FOR ABSENCE	JANUARY-AUGUST, 1922															
	FIRM A				FIRM B				FIRM C				FIRM D			
	Men	Women	Total	Per cent	Men	Women	Total	Per cent	Men	Women	Total	Per cent	Men	Women	Total	Per cent
Production	20	47	67	0.6	7	1	8	0.2	0	11	11	0.8	1	28	29	2.0
Family	354	1,044	1,398	11.9	122	424	546	13.0	42	89	131	9.9	10	150	160	11.3
Personal	200	206	406	3.4	86	139	225	5.3	23	71	94	7.1	7	31	38	2.7
Community	46	33	79	0.7	17	4	21	0.5	11	0	11	0.8	4	1	5	0.3
Physical	2,178	3,775	5,953	50.6	746	1,728	2,474	58.3	214	605	819	61.7	148	602	750	53.1
Weather	2	5	7	0.1	1	12	13	0.3	0	1	1	0.1	0	8	8	0.6
Miscellaneous	1,100	1,518	2,618	22.3	242	458	700	16.6	76	103	179	13.5	6	60	66	4.7
No report	472	756	1,228	10.4	69	153	222	5.3	23	58	81	6.1	28	329	357	25.3
Total	4,372	7,384	11,756	100.0	1,290	2,919	4,209	100.0	389	938	1,327	100.0	204	1,209	1,413	100.0



It is unfortunate that it is impossible to classify the excused absences which are here grouped under miscellaneous. Could these be distributed they would increase the items under "family," "personal" and "community" reasons since all excused absences are cases of permission given by foremen, and are mainly short absences of one day or less. Under permission fall also cases of extended absence where employees need a long vacation for general care of health. The group entitled production could be increased only by additions for times when the plant is closed down or works part of the day. The "no report" group comprises mainly short absences, from which the employee reports back to the plant before the nurses have had time to make a home call.

The black areas on the chart show absence due to delays in production on days when the mills were in operation. The knowledge of slackness in the work is reflected in the fact that in months when this area is large, absences with "permission" and "no report," tend to increase as shown by

the checked areas of the bars. Family reasons are fairly uniform from month to month with a tendency to increase in the school vacation months. During 1921, physical reasons for plant A varied from 1.4 per cent of the potential working days in August to 3.7 per cent in January; at plant B from 2.2 in September to 3.4 in July; at plant C from .8 per cent in August to 6.2 in February. For the first eight months of 1922, the same group at firm A ranged from 1.2 in July to 3.0 in March; for firm B from 1.8 in June to 3.9 in March; for firm C from 1.8 in April to 6.3 in March; for firm D, 2.0 in June to 4.5 in February.

The relative importance of physical reasons appears in the following grouping of major causes: in general, family reasons alone tend to be about 12 per cent of the absences. If the family, personal and community items are added, the percentage deviates, in the main, a few points from 20 per cent. By contrast with this group causes reported due to ill-health rarely fall below 50 per cent of the total absence. Despite the fact that one would ex-

TABLE 8—NUMBER OF ABSENCES DURING YEAR 1921

REASONS	FIRM A			FIRM B			FIRM C		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
<i>All physical reasons</i>	3,203	5,140	8,343	600	2,228	2,828	147	368	515
Illness due to heat	54	28	82	0	8	8	1	1	2
General care of health (dentist, oculist, rest, etc.)	52	71	113	21	81	102	8	19	27
Accidents	231	260	491	37	114	201	6	3	9
<i>All family reasons</i>	454	1,597	2,051	98	599	697	8	62	70
Sickness in family	196	1,221	1,417	61	392	453	2	38	40
Death in family	125	150	275	18	47	65	0	12	12
Moving	57	59	116	7	28	35	0	3	3
<i>All personal reasons</i>	421	614	1,035	159	280	439	37	106	143
Out of town	169	249	418	34	95	129	6	25	31
Overslept	51	144	195	8	64	72	7	18	25

TABLE 9—CAUSES OF ABSENCE—QUARTERLY PERCENTAGES

YEAR	QUARTER	FIRM	CAUSES OF ABSENCE								Per cent of Man-days Lost
			Production	Family	Personal	Community	Health	Weather	Miscellaneous	Unknown	
1920	March April-June July-Sept. Oct.-Dec.	*Firm A	0.0	1.0	0.3	0.0	3.0	0.0	0.6	2.3	7.2
		Firm A	0.06	0.61	0.37	0.0	2.05	0.0	1.06	1.25	5.4
		Firm A	0.03	0.41	0.4	0.0	1.45	0.0	2.11	0.8	5.2
		Firm A	0.1	0.5	0.2	0.0	1.3	0.0	0.5	0.3	2.9
1921	Jan.-March	Firm A	0.1	0.91	0.4	0.05	3.3	0.01	0.63	0.9	6.3
		Firm B	0.04	0.3	0.3	0.1	2.0	0.003	0.32	1.03	4.2
	†Firm C	0.0	0.3	0.8	0.0	4.9	0.0	0.6	2.0	8.6	
	Firm A	0.04	0.66	0.27	0.22	2.2	0.0	0.72	0.59	4.5	
	Firm B	0.01	1.1	0.6	0.02	2.7	0.01	0.9	0.6	5.9	
	†Firm C	0.03	0.1	0.5	0.03	2.84	0.0	1.1	1.0	5.6	
	Firm A	0.02	0.5	0.33	0.01	2.1	0.0	1.44	0.4	4.8	
	Firm B	0.02	0.5	0.54	0.04	2.8	0.0	0.8	0.5	5.2	
	Firm C	1.02	0.3	0.9	0.0	1.81	0.0	1.05	1.72	6.8	
	Firm A	0.02	0.4	0.22	0.02	1.9	0.0	0.94	0.4	4.0	
Oct.-Dec.	Firm B	0.01	0.5	0.24	0.02	2.7	0.0	0.82	0.31	4.6	
Firm C	0.05	0.46	0.63	0.02	2.63	0.0	0.95	1.16	5.9		
1922	Jan.-March	Firm A	0.02	0.63	0.1	0.04	2.9	0.01	0.5	0.4	4.6
		Firm B	0.01	0.7	0.12	0.01	3.8	0.04	0.4	0.22	5.3
		Firm C	0.03	0.9	0.6	0.1	5.3	0.02	0.35	0.4	7.7
	April-June	Firm D	0.0	0.9	0.2	0.0	3.5	0.1	0.2	1.2	6.1
		Firm A	0.04	0.5	0.2	0.02	2.2	0.0	0.8	0.14	3.9
		Firm B	0.01	0.6	0.27	0.02	2.34	0.0	0.9	0.26	4.4
	July-Aug.	Firm C	0.03	0.6	0.4	0.0	3.0	0.0	1.0	0.37	5.4
		Firm D	0.2	1.0	0.2	0.1	3.1	0.0	0.2	1.7	6.5
		Firm A	0.01	0.3	0.12	0.03	1.4	0.0	2.24	1.1	5.2
		Firm B	0.01	0.6	0.4	0.1	2.1	0.0	1.12	0.27	4.6
		Firm C	0.1	0.1	0.2	0.5	3.7	0.0	1.3	0.4	6.3
		Firm D	0.2	0.2	0.1	0.0	4.2	0.0	0.5	2.0	7.2

† May omitted.

† February and March.

* March only.

pect ill-health to be an excuse as well as a necessary cause for absence, it is striking that in the records of four plants for three different years there should be as little variation between the proportion of absences for this cause and that for other reasons. Where absences are checked and medical services provided, it can be assumed that the ratio of ill-health has been reduced to fairly near the minimum.

Minor classifications are given for these groups in 1921 to show the most outstanding sub-classifications. General care of health is low because of the facilities provided in the plants for care of teeth and eyes, attention which can be given within working hours.

Because the totals under some items are small, the figures have been grouped in quarterly and yearly tables instead of monthly.

In the quarterly grouping, plant A

shows absences in the January-March quarter of about 2 per cent higher each year than in other quarters. The same is true for plant C. The low absence found during the summer months is due to the practice at both plants of closing during the last week of August to reopen again after Labor Day, thus taking care of vacations, except in special cases for which arrangement is separately made. It is consequently only the cases of individually arranged vacations which appear on the absence report. Firm B set out to follow the same practice but was forced to keep part of the plant working during the vacation period in 1921. Despite this arrangement it has been pointed out already that the month of July tends to run higher in days lost than other summer months. Physical reasons account for the higher winter months.

TABLE 10—ABSENTEE PERCENTAGE BY OCCUPATIONS FOR MILL A

OCCUPATION	AVERAGE NO. ON PAYROLL		POTENTIAL MAN-DAYS		MAN-DAYS LOST		PERCENTAGE MAN-DAYS LOST	
	Men	Women	Men	Women	Men	Women	Men	Women
	Beamer	58	28	8,758	4,228	128	104	1.46	2.45
Burler and Finisher	28	38	4,228	5,738	36	65	0.85	1.13
Cleaner	6	15	906	2,265	5	103	0.55	4.54
Clerical Employees	52	56	7,852	8,456	292	329	3.71	3.89
Coner	14	97	2,114	14,647	75	1,294	3.55	8.83
Dyer	28	2	4,228	302	101	11	2.38	3.64
Gasser	31	0	4,681	0	136	0	2.90	0.0
Inspector	0	5	0	755	0	42	0.0	5.56
Learner	6	36	906	5,436	0	27	0.0	4.96
Machinist	29	0	4,379	0	198	0	4.52	0.0
Quiller	23	39	3,473	5,889	88	268	2.53	4.55
Reeler	0	7	0	1,057	0	11	0.0	1.04
Splitter	27	2	4,077	302	167	36	4.07	11.92
Spooler	2	14	302	2,114	6	323	1.98	15.27
Weaver	173	161	26,123	24,311	1,185	1,969	4.53	8.09
Winder	7	62	1,057	9,362	48	488	4.54	5.21
All others	179	72	27,029	10,872	722	488	2.67	4.48

ABSENCE BY OCCUPATION

A survey of absence by occupation during the six months, March–August, 1922, shows that lost time is highest for some of the most important occupations. It will be seen that the women coners are losing more than two days a month per each woman employee. The percentage of absence among weavers is somewhat lower than among coners but is, none the less, above two days a month for each woman weaver, and about one day for each man weaver employed. The absence table, classified by occupations, is given on page 211.

Compared with coners and weavers the quillers have a relatively low absence. For the men the low percentage of absence among dyers was unexpected, especially by comparison with the attendance of machinists, though it must be borne in mind that both are small groups. The loss of time among beamers was very low for both men and women.

For firm B there is less difference in the absences by occupations; the

men weavers have an absence of 4.4 per cent, the women of 4.6. For men coners the absence is low, being about one half of one per cent; for women the rate is 6 per cent.

CAUSES OF ABSENCE FOR MEN AND WOMEN

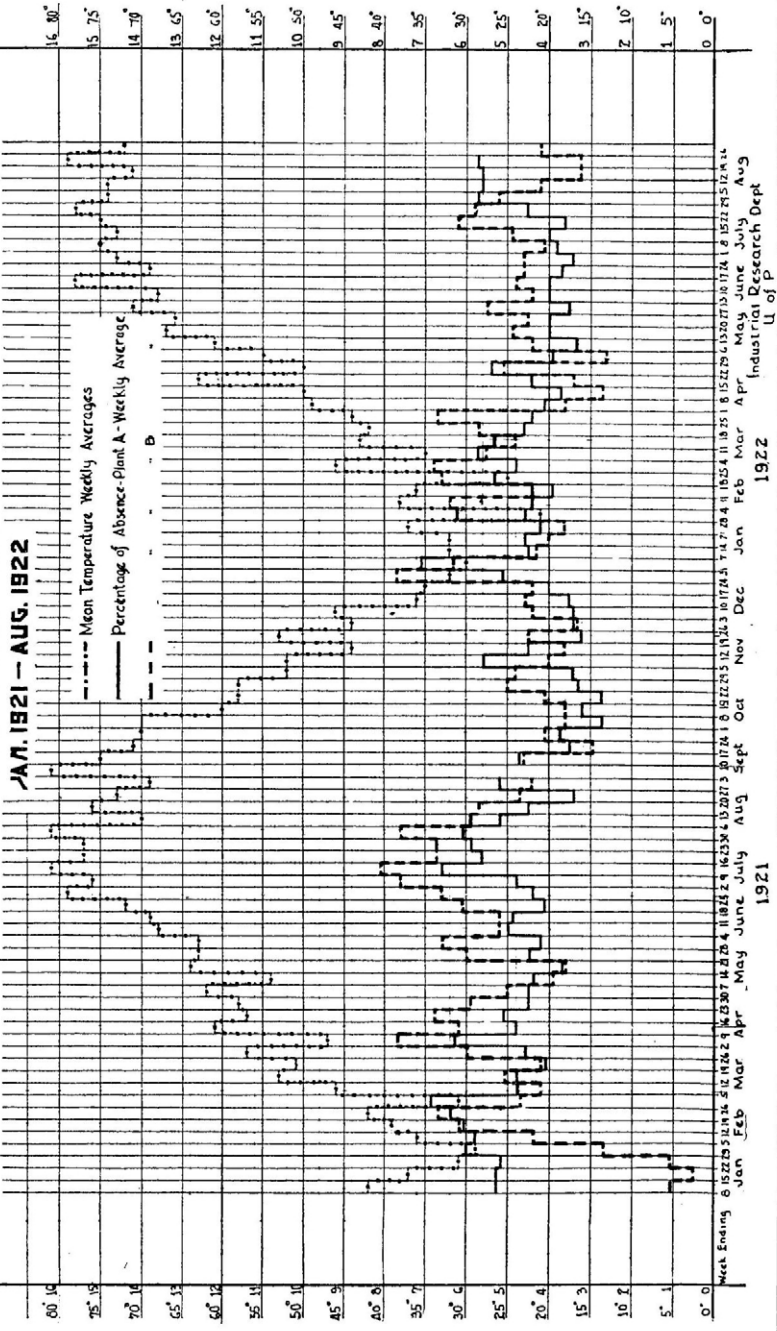
The very considerable differences in the absence rate of men and women have already been noted. Contrasts appear also when causes of absence are considered separately. The men's absences, which run highest in the October–December quarter for firm A, have a high percentage under personal and family reasons, for the two months at the end of the year. The high absence rate of women accounts for the peak in January–March. Here the cause is found under physical reasons since all other reasons run higher in other quarters. December and the cold months of the early part of the year take a heavy toll for ill-health among women. This will be noted again in the section under climatic factors.

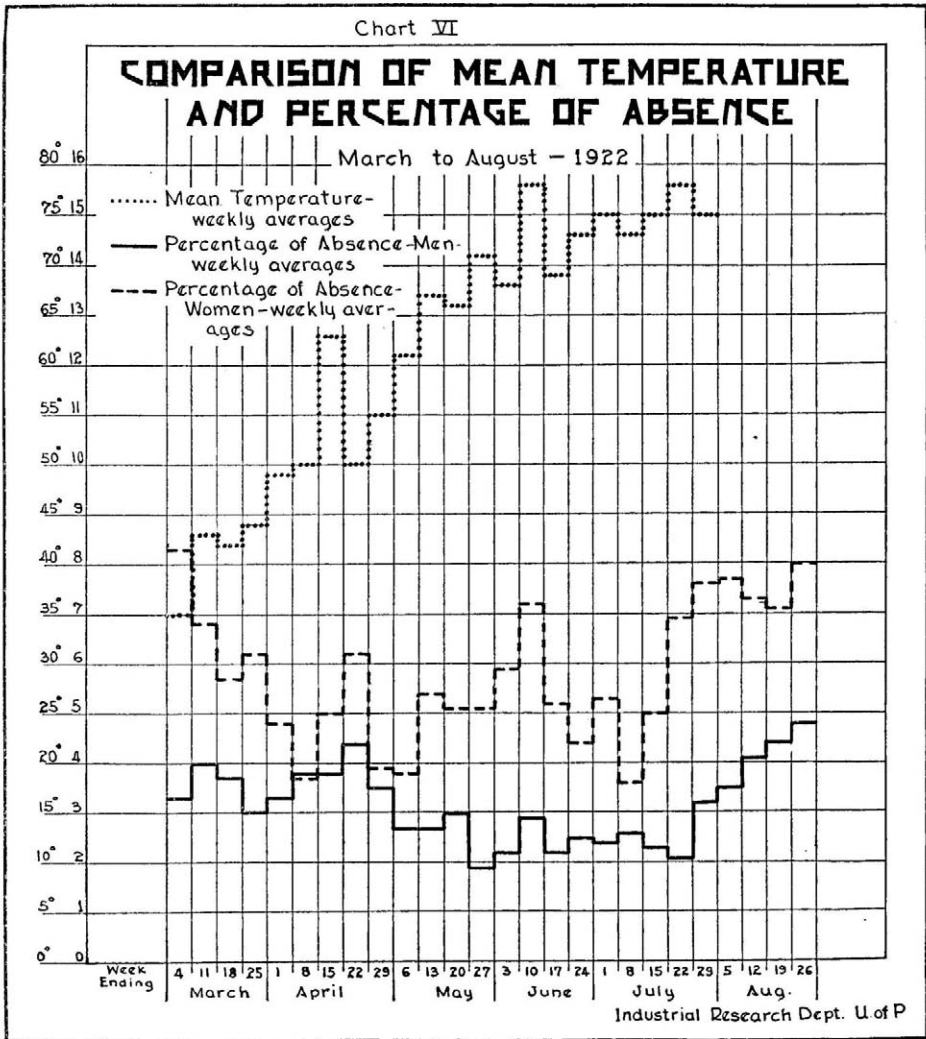
TABLE 11—FREQUENCY TABLE OF INDIVIDUAL ABSENCES

DAYS OF ABSENCE	MEN			WOMEN		
	No. of Absences Reported	Total No. of Days of Absences	Percentages of Total Absences	No. of Absences Reported	Total No. of Days of Absences	Percentages of Total Absences
1.....	1,009	1,009	30.3	1,498	1,498	28.4
2.....	216	432	13.0	287	574	10.9
3.....	97	291	8.7	139	417	7.9
4.....	78	312	9.4	106	424	8.1
5.....	44	220	6.6	72	360	6.8
6.....	33	198	5.9	46	276	5.3
7.....	9	63	1.9	18	126	2.4
8.....	8	64	1.9	12	96	1.8
9.....	10	90	2.7	10	90	1.7
10.....	7	70	2.1	13	130	2.5
11.....	10	110	3.3	13	143	2.7
12.....	6	72	2.2	12	144	2.7
13.....	4	52	1.6	8	104	2.0
14 and over	17	345	10.4	48	886	16.8
Total	1,548	3,328	100.0	2,232	5,268	100.0

Chart V

COMPARISON OF MEAN TEMPERATURE AND PERCENTAGE OF ABSENCE





LENGTH OF INDIVIDUAL ABSENCES

The greatest problem of absence in these plants is not due to short absences by a widely distributed group of employees. Even among the one-day absences which account for about one-third of the non-attendance, the same employee is gone at fairly frequent intervals. Mr. Hackett states the problem in this way:

Some workers take an occasional day off at calculated intervals, regarding it as somewhat of a necessity to the maintenance of their health. Others stay on the job till sickness forces them to remain at home, thus losing twice as much time in the aggregate with less benefit to themselves. No employer can feel that the

first course is the unwise one. The fact is that perfect attendance means that a worker has no opportunity for the performance of civic or family obligations and possibly not enough for the maintenance of health.

The greatest difference in the individual absences of men and women is found in the percentage of absences of ten days and over; 26.7 per cent of the total absences of women are for a period of 10 or more working days; only 19 per cent of the men's absences fall in this frequency interval. The frequency table by days of absence shows the loss to the company as well as length of each absence in the six months—ending June, 1922.

IV—CLIMATIC INFLUENCES IN NON-ATTENDANCE

Many factors aside from the weather affect the attendance of workmen. Yet if there is a general conformity between the curves of non-attendance and the fluctuations of the curves of climate, it seems reasonable to ascribe some influence to that factor. Some items in the daily reports are definitely connected with unfavorable weather: storms in winter, excessive heat in summer, and wet weather for which some employees have not adequate protective clothing appear on the records. These items, at most, make a small part of the total. The problem, then, is: does it appear that the climatic factors strengthen other reasons and pile up non-attendance on unpleasant days?

Let us consider average weekly attendance and mean weekly temperature for the six months, March–August, 1922. It should be recalled that this has been a particularly cool summer with only a few weeks of excessively warm weather. The warm days of the second week in June are only

slightly reflected in the men's absence curve, while it is somewhat pronouncedly shown in the rise of the curve for women. A similar week at the beginning of July did not affect the men's absences in any way. On the contrary, the dotted line representing the absences of women rose considerably. Unfortunately, in 1921, the absence curves for men and women must be combined for comparison. In that year a stretch of weeks of warm weather occurred in July. During all this time the absenteeism remained high, returning to normal only after the mean temperature became lower.

In comparing the daily absence of workers in Chart II, p. 202, the maximum daily temperature has been used instead of the mean, since the maximum temperature more nearly reflects the comfort or discomfort of the working hours.⁶ The daily curves for men and women have already been dis-

⁶ The maximum temperature is better to use for summer and the minimum for winter. The maximum has been used throughout the

cussed. These curves tend to follow the temperature curves in the first days of warm weather in March and April; a warm week around the tenth of May is more sensitively reflected in the women's than in the men's curve. The warm days in June and July have little influence upon either curve.

CLIMATOLOGICAL DATA BY DAYS OF WEEK

Since Monday absences run higher at all mills than absences of other days, there is no reason to think that climatological factors play any part in the Monday absences above the average of other days. For this reason the absence percentages for Wednesday as well as those for Monday were compared with the rainfall and temperature. On these charts the dotted line represents maximum temperature in degrees, the open circled line represents rainfall in inches and the solid black line represents the total combined percentage of absence of men and women at firm A.

On Mondays there are few days of heavy rainfall and little correspond-

ence of this curve and absenteeism. In 1922, February 27 and March 20 were Mondays with storms continued over from a previous day. In each case the absence was excessive. On the wet Monday, May 23, which shows so markedly on the chart, the rain did not begin until late afternoon and in no way could affect absence. The peak of April 17 has already been mentioned as due to Easter Monday. This accounts for every high peak in the curve except that of January 30, 1922, which may be due to cold. On the Wednesday curve, note the generally lower average of the curve except on particularly unfavorable days.

Summarizing, it may be said that cold weather effects the curve for absence of women more than warm; that the men's curve, except when transportation is disturbed, is on the whole little influenced by winter weather. Both curves are markedly increased by the first excessive days of heat. Rainfall in the summer months has rather little influence upon attendance, whereas in spring and late autumn months its influence is unmistakable.

V—CONCLUSIONS

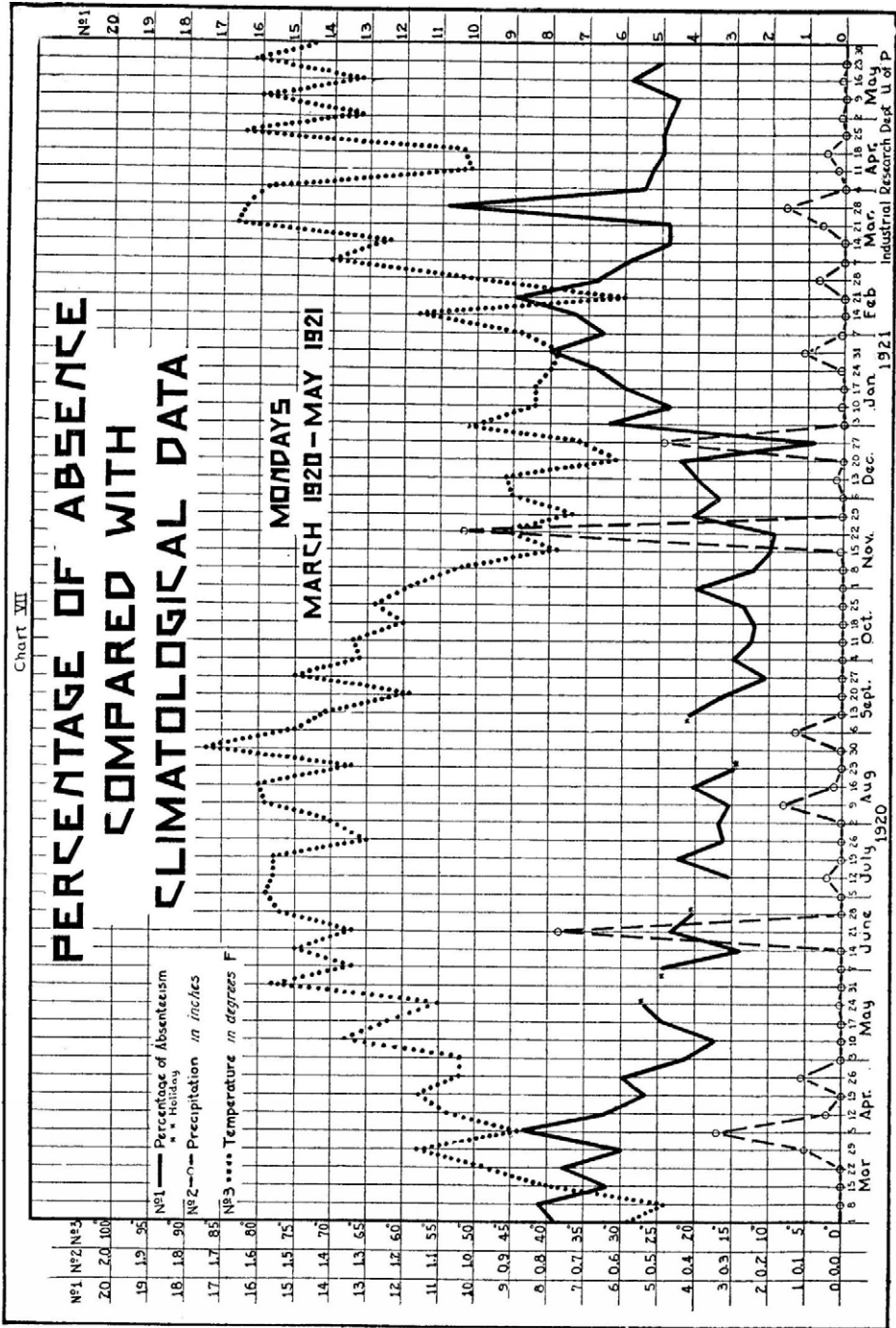
The Director of the Bureau of Commercial and Industrial Relations of the University of Wisconsin writes in Circular No. 5 A:

There is a danger that the advantages of absentee records may be overrated. After all, the prime purpose of underemployment records should be to reduce unproductive hours within the schedule production time. The time lost by the employee

study because of the difficulty of determining, for this climate, the time when the change should be made. In reading the graphs, the high points are of significance in the summer and the low in the winter.

after he has rung his clock card, whether it is lost on the way to his department or after he is in the department, is of much more concern to the employer than the time lost by the worker outside of the plant by absence or tardiness. To protect against such losses the employer needs to refine records considerably beyond the accuracy most absentee reports achieve.

The writers of this study would, however, prefer to stress the necessity of correlating records of absence as well as those of "no work" with production. A study of attendance records in terms of the effect upon production and



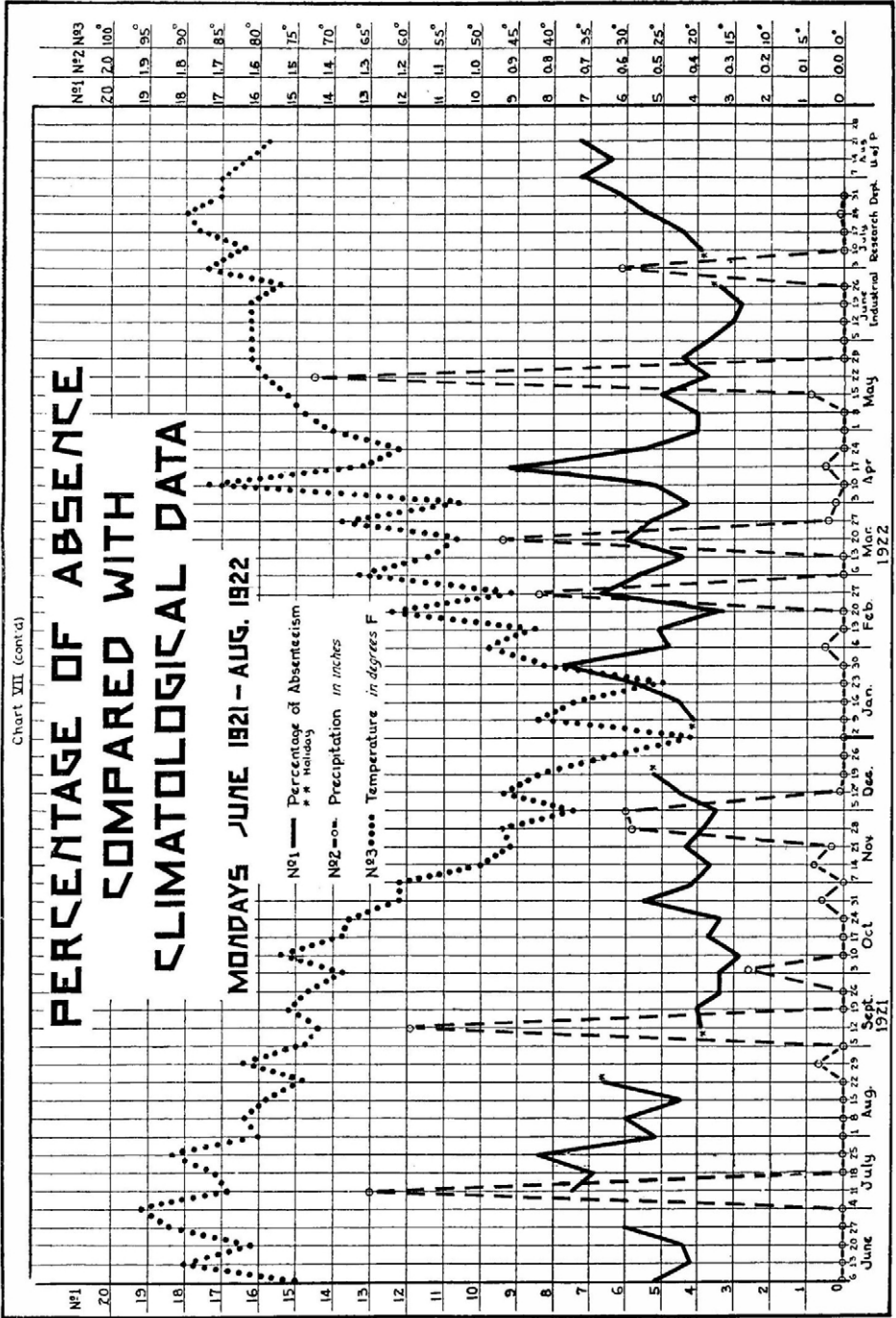
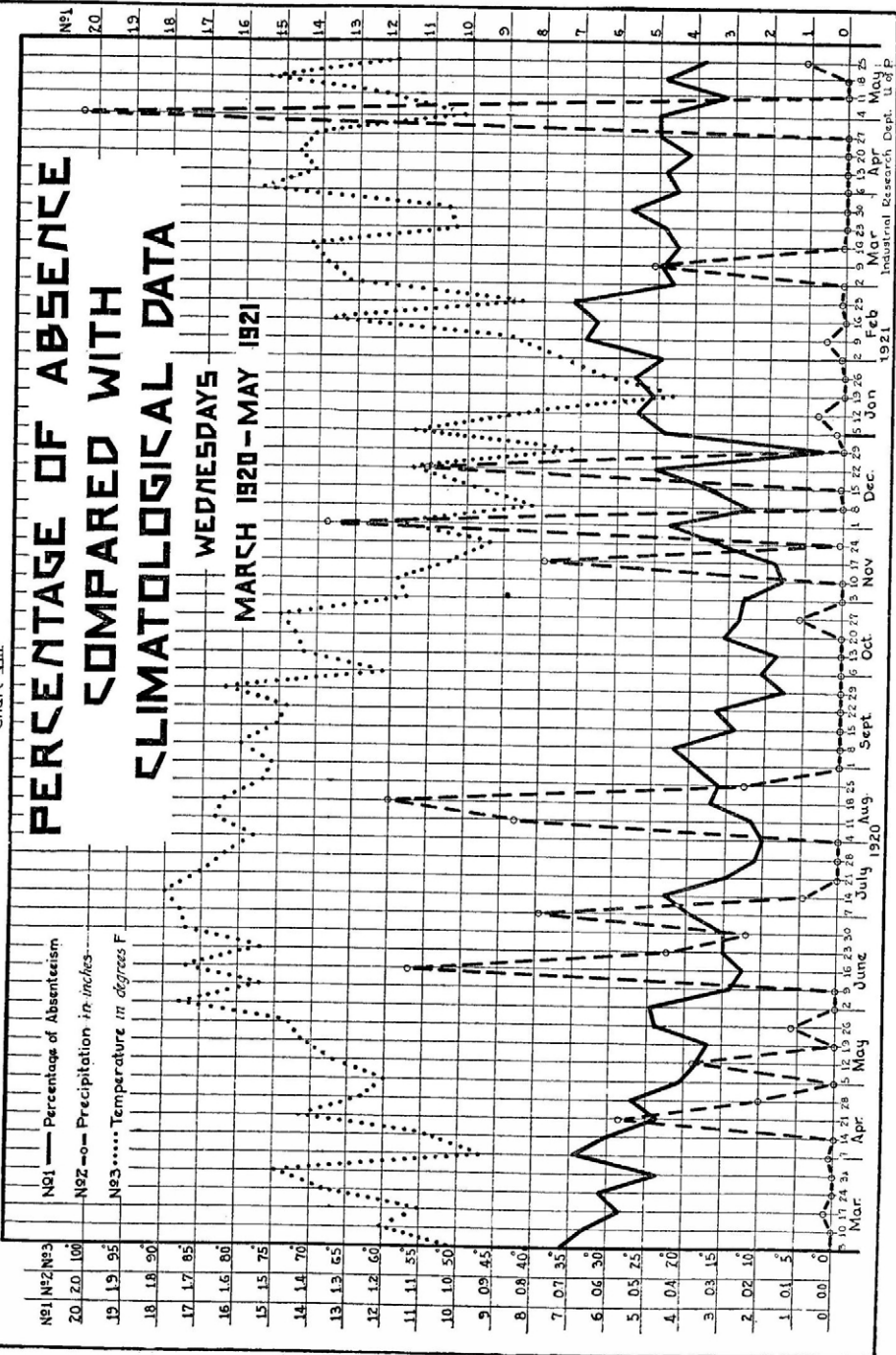


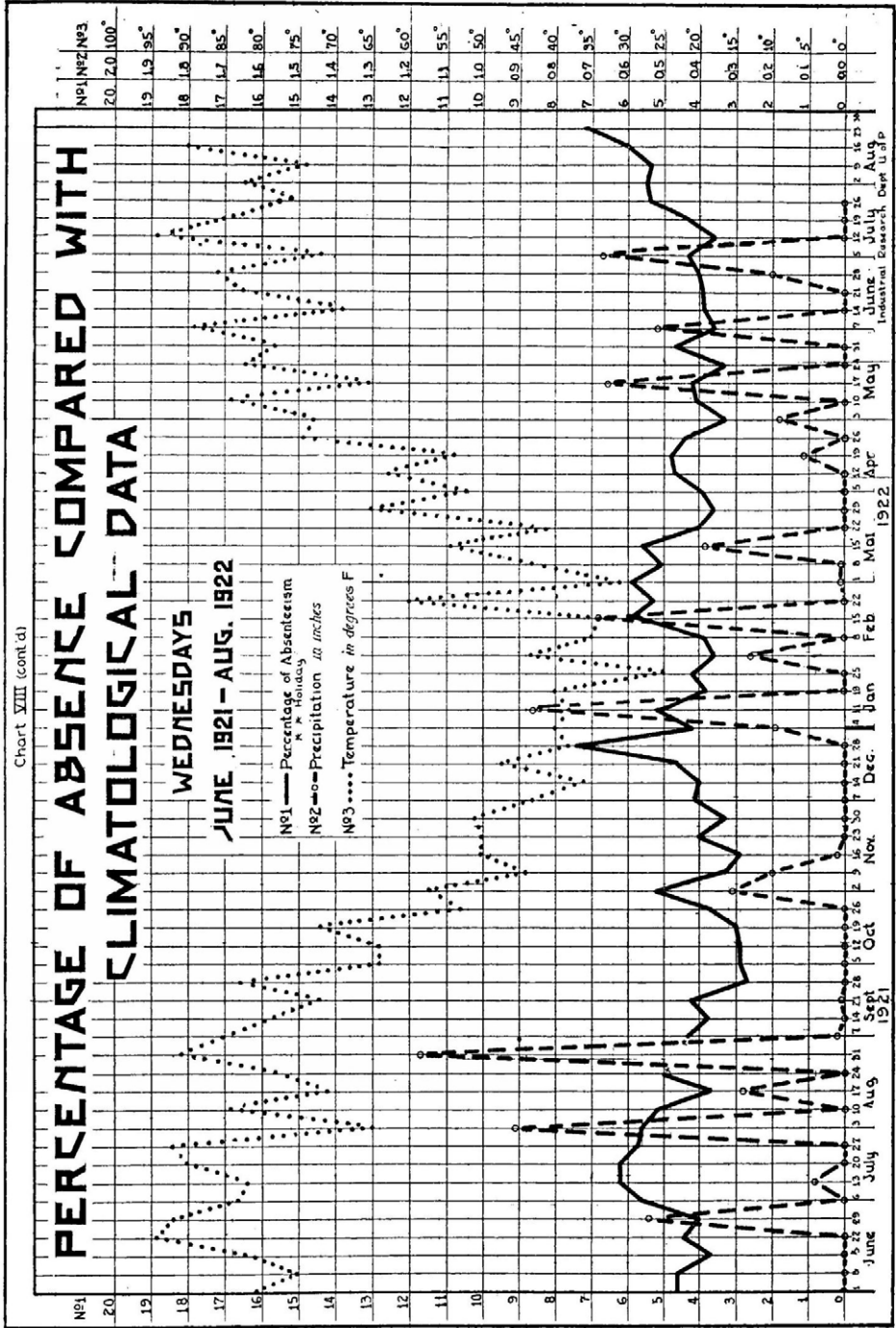
Chart VIII

PERCENTAGE OF ABSENCE COMPARED WITH CLIMATOLOGICAL DATA

WEDNESDAYS MARCH 1920 - MAY 1921



Industrial Research Dept. U. of P.



earnings would be valuable. Fluctuation in the size of the working force due to irregular reporting of employees is important in maintaining production schedules and in preventing intermittent overtime.

The findings of this study do not differ from those already established by other industrial students. In an analysis of absenteeism in several prominent plants, Dr. Florence found the rate of absence in factories where work is light to be between 3 per cent and 8 per cent; in factories having preventive organizations the percentage was as low as 1.8 per cent. Doubtless the range of these percentages would depend upon the proportion of women in the organizations, and the marital status of employees, as well as upon the regularity of production and the flow of work through the shop. None of the plants studied here had attained the low rate of 1.8 per cent. In factories discussed in this study the absence of men varied from 3 to 5 per cent; that of women ranges as high as 5 to 8 per cent, nearly double the rate for men, a difference which was found even when men and women were working on identical operations. The lowest attendance rate is found in the winter months, women employees, especially, being detained from work by excessively cold days. Spring and fall months show uniformly higher attendance. This seasonal variation in the regularity of the size of the working force

is predictable and can be considered in planning work.

At all the plants Monday absences have been higher than those of other work days. The difference in attendance on days of the week shows that there is yet a margin of preventable absence that could be reduced with advantage to the employees as well as to the management. Something could be achieved by educating workers to appreciate the necessity of reducing the amount of time lost for avoidable reasons. Perhaps this could be done by more attention to interviewing returned absentees. The foreman could be further enlisted in the cases of "permission" by furnishing a specific cause in addition to the information that the employee was excused.

The monthly variation in absence according to seasons is important and can be considered in planning. Low percentages in the spring and fall with higher percentages during the winter months occur regularly in many plants.⁷ In these winter months more extra workers must be carried on the roll to compensate for the absentees. The daily variation due to unpleasant weather is unpredictable, but is none the less an important factor in planning.

The length of individual absences shows that about two-thirds of the number of days lost are those of employees who have been away from work more than one day.

⁷ Note the conclusion of Mr. Hackett.