

A Study of Certified Sickness

Absence among women
in industry

by
S. Wynnatt etc.



MEDICAL RESEARCH COUNCIL

**INDUSTRIAL HEALTH RESEARCH BOARD
REPORT No. 86**

**A STUDY OF CERTIFIED SICKNESS
ABSENCE AMONG WOMEN
IN INDUSTRY**

by

S. WYATT

(assisted by R. Marriott, W. M. Dawson, Norah M. Davis,
D. E. R. Hughes and F. G. L. Stock)

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SICKNESS AMONG WOMEN IN INDUSTRY

SICKNESS ABSENCE

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(Revised 1942)

To advise and assist the Medical Research Council in promoting scientific investigations into problems of health among workers, including occupational and environmental factors in the causation of ill-health and disease, and the relation of methods and conditions of work to the functions and efficiency of body and mind; and in making known such results of these researches as are capable of useful application to practical needs.

TEMPORARY OFFICES :

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A STUDY OF CERTIFIED SICKNESS ABSENCE AMONG WOMEN IN INDUSTRY

PREFACE

During the war, good health in industrial workers is of urgent practical significance, since ill-health leads to absence or lowered efficiency, and thus to decreased production. Until recently, the problems of health and disease in women have attracted less interest and attention than other, less important, causes of absence from work. There appears to be a tendency to regard ill-health which cannot be attributed to the nature of the work as unavoidable, although there is evidence that some factories have a considerably higher rate of sickness absence than others engaged on similar work.

There can be little doubt that the wartime extension of industrial medical and personnel services, and also of canteens and hostels, has done much to prevent illness, but scientific evidence of the effects of environmental and other factors on health is lacking. The Industrial Health Research Board decided, therefore, that there was a need for a detailed inquiry into the nature, distribution and causes of sickness absence, and this report presents some of their findings on the subject.

An understanding of the scope and limitations of this report is desirable. The report is, in the main, a statistical study of the records of the sickness absence of some 20,000 women. At present, it is unfortunately not possible to obtain a more comprehensive picture of the health of women workers as a whole, or even of women in any particular industry, since, in many organisations, records of sickness absence are inadequate or not comparable. Further, this report is confined to a discussion of those factors which are suitable for quantitative analysis, such as the types of disease, the amount and distribution of sickness absence, and the age, length of service and civil state of the women concerned. It was thought that a study of measurable factors should precede any inquiry into the more complex, and often obscure, relationship between health and working conditions, or between physical health and the mind.

The investigation was completed before "The Recording of Sickness Absence in Industry" (*Industrial Health Research Board Report No. 85*) was published, and the recommendations contained therein were, therefore, not available. The procedure adopted in the present investigation differs in some respects from that suggested in Report No. 85. The classification of disease, and the method of reckoning the length of absences, are not quite the same. There is reason to believe, however, that the procedure recommended in Report No. 85 could be used in most establishments, especially after the war, when conditions are likely to be more uniform and stable.

This report on sickness absence at a certain stage in the war should be useful for comparative and historical purposes, and also as an indication of the value and methods of treatment of sickness records. Sickness records serve as an index to the state of health of individuals and of groups of workers, either in the same or in different industries; and they frequently draw attention to unsuspected factors that impede progress and undermine fitness for work. A high sickness rate is serious not only because it means absence from work, associated with human suffering and loss of production, but also because it is likely to be the result of some general condition affecting all workers in

different degrees, implying therefore a more widespread ill-health than is shown by absence records alone. Thus general measures which reduce sickness absence will probably result also in improved health and efficiency among all workers in the group. In addition to such general measures, special attention to a comparatively small number of women should lead to a considerable decrease in the amount of time lost through illness. This investigation, although limited to a study of a period of six months only, indicates that in war, as in peace, a minority of the workers are particularly liable to sickness absence.

INDUSTRIAL HEALTH RESEARCH BOARD OF THE
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Keppel Street, Gower Street, London, W.C.1.

20th December, 1944

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I.—NATURE AND SCOPE OF THE INQUIRY

The problem of absenteeism among workers in industry has already received much publicity, and attempts to cope with it have met with some measure of success. Yet until recently, attention has been directed mainly to casual absence, despite the fact that sickness absence is usually responsible for one-half to two-thirds of the total time lost.

In the past, the tendency has been to regard all absence due to sickness as unavoidable. It is accordingly not surprising that most employers, though often disturbed by a moderate amount of casual absence, are usually less worried by a much higher sickness rate. That a substantial amount of sickness absence is probably avoidable is shown by the facts that it is much lower in some factories than in others doing the same kind of work¹; that it varies with the hours and conditions of work², and that it is usually reduced by efficient medical and welfare services. The problem of health and disease is, of course, related not only to working conditions but also to the wider background of diet, housing, transport, leisure and other specific factors.

Before any steps can be taken to reduce the amount of sickness absence in industry, it is necessary to have accurate information on the amount, nature and causes of this type of absence. In other words, policy must be based on knowledge. The collection of reliable information is by no means easy, as a large majority of firms either keep no records of sickness absence or keep them in such a way as to make them useless for comparative purposes. In some factories, only certified sickness absence of more than two, or sometimes three days is recorded; in some, the opinion of the foreman is accepted, and in others the explanations given by the workers are deemed enough for the purpose. Thus some records show only certified sickness absence above a certain length, while others give a combination of certified and uncertified sickness absence varying from one to any number of days. Further, even when the records are limited to certified sickness absence, the enforcement of the rules regarding the production of medical certificates may be strict in some factories but lax in others.

In this inquiry, the information collected was restricted to certified sickness absence of two or more days in factories where the methods of recording were known to be reasonably accurate and complete. Thus the amount of time actually lost through sickness is likely to be under-estimated. On the other hand, the exclusion of uncertified sickness absence, which may or may not be genuine, should increase the reliability of the results.

The results given in this report refer to women employed in five munition factories. A few relevant particulars of the type and conditions of work in each factory are summarised below.

<i>Factory</i>	<i>Type of work</i>	<i>Average number employed</i>	<i>Shift system*</i>
A	Small arms ammunition	9,194	3
B	Fuses	3,523	2
C	Shell cases	4,123	3
D	Guns and projectiles	5,097	2
E	Electrical equipment	2,531	1, 2 and 3
		24,468	

¹ See p. 4, "Sickness Absence and Labour Wastage". *Industr. Hlth. Res. Bd. Rep. No. 75.* H.M. Stationery Office, 1936 (out of print).

² See pp. 4 and 5, "Hours of Work, Lost Time and Labour Wastage". *Industr. Hlth. Res. Bd. Emergency Rep. No. 2.* H.M. Stationery Office, 1942. 6d. net. (by post 7d.).

* 1 = day work only, 2 = day and night shifts, 3 = morning, afternoon and night shifts.

The procedure adopted in each factory was to select a random sample of (usually) 1,000 women¹, and to copy from the factory records the time, duration and nature of each certified sickness absence for the six months ending 31st December, 1942.² The age, civil state, and length of service of each worker were also recorded. Women who left or began work during this period were excluded from the tabulation.³

The general aim of the investigation was to ascertain the amount, distribution and nature of sickness absence in fairly representative groups of female workers, and to relate the findings to such factors as age, length of service, civil state and type of work.

II—RESULTS OBTAINED

The general trends of the results obtained from the five factory groups were found to be very similar, and they have been combined and averaged so as to form a single group. Thus the figures given in this report may be regarded as representative of approximately 20,000 women employed on varied types of work in widely different parts of the country.

A—Amount of Sickness Absence

The amount of sickness absence in a given period can be measured by (a) the number of absences in relation to the average number of workers employed, and (b) the number of days lost in relation to the total number of days possible. These measures can be applied to absence due to different types of disease as well as to sickness absence as a whole. Most of the tables in this report have been compiled on this basis, but other methods of treatment have been used when necessary.

Before proceeding to discuss these tables, some indication of the general trend of sickness absence during 1942 and 1943 may be given. The records used for this purpose were obtained from five large factories employing about 33,500 women, and the combined results are given in the form of monthly averages in Figure 1.

Considering first the percentage of time lost due to all causes, it will be seen that the curves for 1942 and 1943 show the same general trend, except for a sharp rise in the last two months of 1943. This rise was due to an influenza epidemic which reached a peak in December; otherwise the curves show the usual variations in absenteeism. The total absenteeism in 1942 and 1943 was 14·7 per cent. and 15·0 per cent. respectively; hence, in these factories, absenteeism in 1943 was practically the same as in 1942. There is reason to believe that this feature of the results was fairly typical of absenteeism in munition factories as a whole.

Absences due to sickness and accidents accounted for more than half the total time lost. The time lost in the first half of 1943 was a little higher than in the corresponding part of 1942, but in the latter part of the year the position was reversed (except for the increase in the last two months of 1943). In other words, there was a lateral displacement of the curves in 1943 as compared with 1942, so that the stage of sickness absence reached in 1942 occurred approximately a month later in 1943. The percentage of time lost through

¹ In Factory E the number in the sample was 500.

² The investigation was planned and begun in March 1943, but the latest records available were those for the last six months of 1942.

³ The total number of women at the beginning of the period was 23,690 and at the end 25,246 (Average 24,468). During the period, 5,462 women began work and 3,906 left for various reasons, thus the total number employed for some part of the period was 23,690 + 5,462 = 29,152. The total from which the sample was taken was 23,690 - 3,906 = 19,784, which represents 67·9 per cent. of all the women on the books during the period. Thus the sample was drawn from those who had been employed for at least six months on December 31st, 1942, and to this extent it represents a selected group.

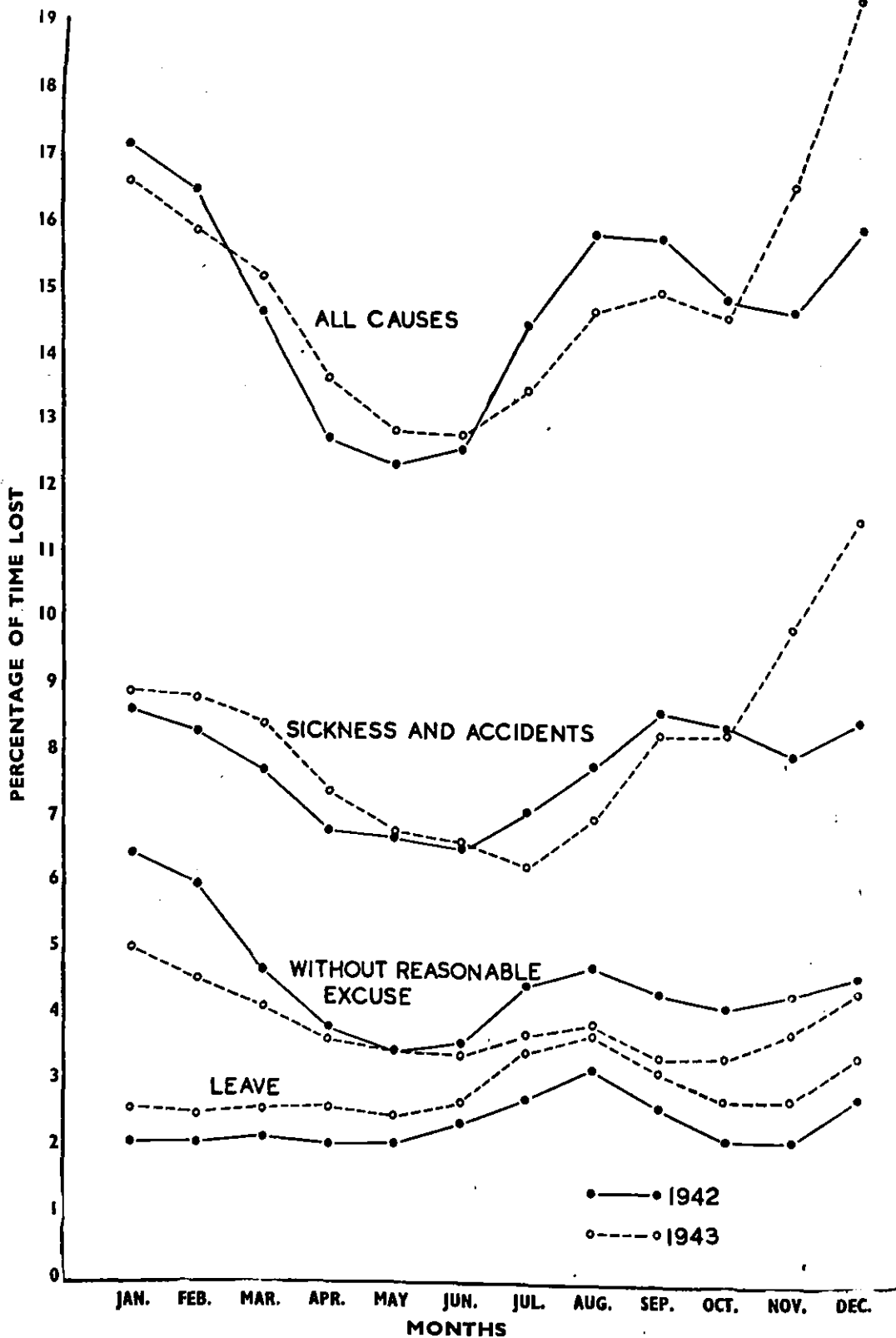


FIG. 1.—Percentage of time lost due to (a) absence with leave, (b) absence without reasonable excuse, (c) sickness and accidents, (d) all causes, during successive months in 1942 and 1943.

sickness and accidents in 1942 and 1943 was 7·7 and 8·2, respectively, but the slight increase in 1943 was due entirely to the numerous but comparatively mild cases of influenza in the last two months. The average amount of sickness absence in the other ten months was the same in both years.

The amount of time lost through absence without reasonable excuse was highest at the beginning of the year, when bad weather, especially in 1942, sometimes made travelling difficult and unpleasant, and some women were either unable or unwilling to make the journey to the factory. It is also customary for workers to take a day or two off at the beginning of the New Year. The similar trend shown by the absence curves for sickness and without reasonable excuse, especially in the first half of the year, suggests that the latter included some uncertified sickness absence of one or two days which was not given or accepted as a valid reason for absence. Part of the increase which reached a maximum in August was doubtless due to the same cause, but it is probable that the main reason was the desire for an extra holiday. The latter view is supported to some extent by the corresponding increase in absence with leave, which was granted more freely at this time of the year to those who needed it. It will be noted that absence with leave was higher in 1943 than in 1942, while absence without reasonable excuse showed the opposite tendency. In 1943, applications for leave were considered more sympathetically by labour officers, and in most factories there was an increase in absenteeism due to this cause. The less liberal attitude which prevailed in 1942 merely resulted in more absence "without reasonable excuse". Thus the two sets of curves are really complementary, and the results show that the total absence due to leave and without reasonable excuse in 1942 and 1943 was 7·0 per cent. and 6·8 per cent., respectively. Incidentally, these considerations suggest that much of the casual absence which gave rise to so much publicity in the earlier stages of the war would now be regarded and accepted as absence with reasonable excuse.

As already mentioned, the preceding graphs and comments refer to a different group of factories from those used for the main inquiry. The remainder of the report deals only with the combined results obtained from Factories A, B, C, D and E.

(i) *The frequency of sickness absence*

The frequency of sickness absence in the main disease categories is given in Table I. The figures show the average number of cases per 100 workers in the period of six months.

TABLE I
Average number of cases of sickness absence per 100 workers in the period of six months

<i>Disease group</i>	<i>No. of cases</i>		
	<i>Married</i>	<i>Single</i>	<i>Both</i>
Respiratory	26·4	21·1	24·1
Digestive	13·3	9·4	11·6
Circulatory (including diseases of the blood)	5·4	3·4	4·5
Locomotory	7·1	4·2	5·8
Nervous	12·2	7·0	9·9
" Fatigue "	6·5	2·8	4·9
Generative	3·1	1·2	2·3
Skin	3·2	2·8	3·0
Accidents (at work)	6·0	2·8	4·6
Accidents (away from work)	2·2	1·6	1·9
Miscellaneous	7·7	6·7	7·3
No diagnosis	5·1	3·3	4·3
All groups	98·2	66·3	84·2
Number of workers	2,545	1,997	4,542

Thus, for every 100 women in the sample, there were, on the average, 84·2 cases of sickness absence in the last six months of 1942. This does not mean that 84·2 per cent. of the women were absent through sickness, since some were absent more than once. The corresponding figures for married and single women were 98·2 and 66·3 respectively. Hence absences among married women were approximately 48 per cent. more frequent than among single women.

The results also show that diseases of the respiratory system were responsible for the greatest number of absences (28·6 per cent. of the total). Almost two-thirds of these were due to colds and influenza. The next in order of frequency were digestive ailments, and these were closely followed by nervous disorders. The latter group included a small proportion (one-eighth) of organic nervous diseases, but the remainder were of the functional type. A distinction has been made between the "nervous" type of illness and absences due to "fatigue," which consisted of cases labelled asthenia, general debility, general fatigue and industrial fatigue. Although the two groups have much in common, it was thought that the distinction might be of use to persons interested in industrial health. It is also fairly certain that some of the digestive diseases, as well as a number of those where no diagnosis was given, had a "nervous" background. Thus "nerves" and "fatigue" probably accounted for about 20 per cent. of the total number of absences.

Diseases of the locomotory system, of which about half were due to rheumatism, were responsible for 6·9 per cent. of all the absences, while a further 5·3 per cent. were due to diseases of the circulatory system (mainly anaemia). Factory accidents involving absences of two or more days were also fairly numerous, especially among married women.

The miscellaneous group included diseases of the eye, ear, nose, mouth and glands; diseases of the urinary system; infectious and industrial diseases; and various ill-defined ailments, such as sepsis, vaccination, chills and pains. There were also a number of medical certificates which merely stated "This is to certify that.....is unable to work owing to ill-health" or "This is to certify that.....is unable to follow her usual occupation". Only a small minority of doctors adopted this procedure, and in most cases less than 10 per cent. of their certificates were of this type. As far as could be ascertained, such certificates usually referred to indefinite symptoms which were diagnosed by other doctors as "gastric" or "nervous" disorders.

The preceding results show the average number of cases of sickness absence, irrespective of their duration and time of occurrence, in a period of six months. There were, however, some important variations in the sickness rate at different times within the period. These are shown in Fig. 2, which gives the average number of cases (per 1,000 workers) on the books in each week of the period, including those which started before or continued after the period of six months.

The results show that the weekly number of cases of sickness absence increased from 63 per 1,000 workers at the beginning of July to 130 per 1,000 in the latter part of September. This rise was followed by a fall until the first week in November, and then by a rising tendency to the end of the year. The sharp increase in the last week of the year may have been due in part to the effects of the Christmas break, but it is more likely that it was the beginning of a period of increased sickness which, as a rule, reaches a peak in February.

The curve for married women was on a much higher level but followed the same general course as that for single women. There was, however, a tendency for the two curves to diverge from the beginning to the end of the period. In other words, the greater proneness to sickness among married women tended to increase throughout the last six months of the year.

The general trend of the curves in Fig. 2 agrees closely with corresponding curves obtained in different years from other factories, hence it may be regarded as fairly typical of seasonal variations in sickness absence during the latter half of the year.

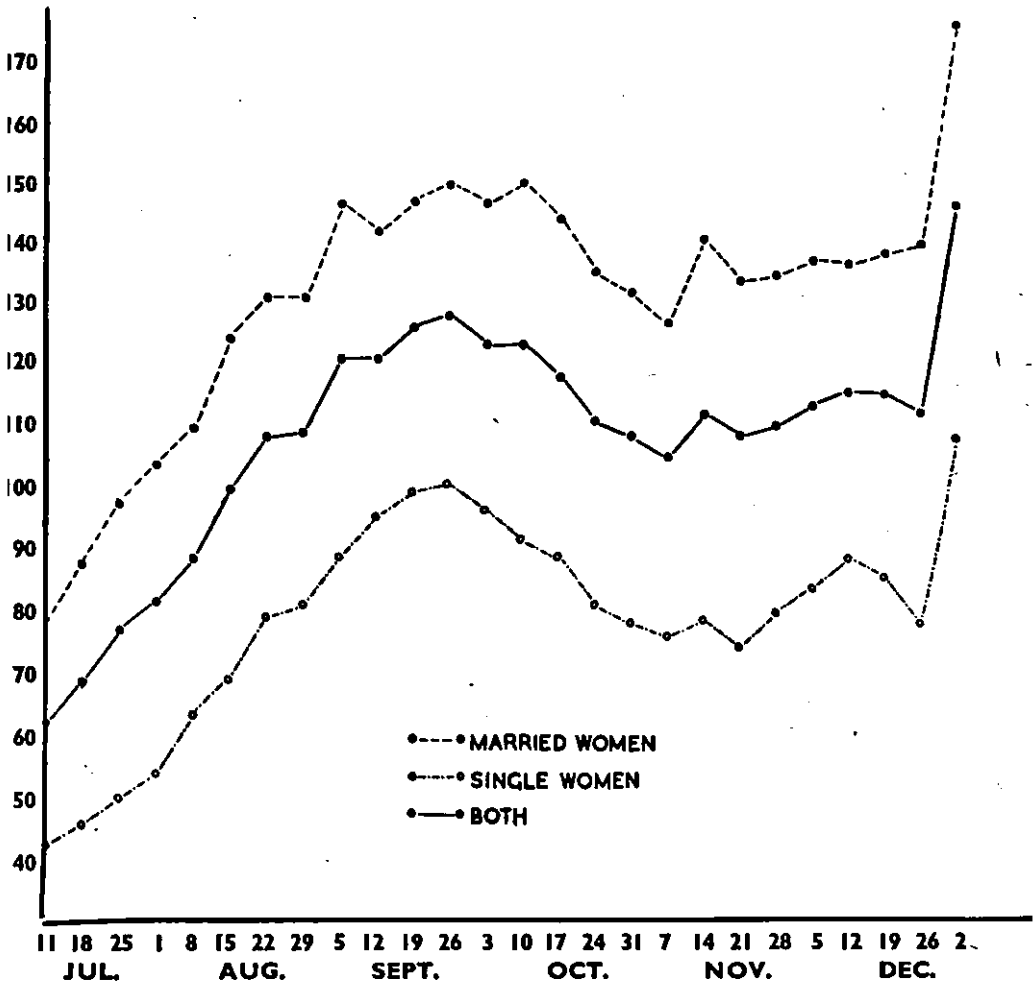


FIG. 2.—Average number of cases of sickness per 1,000 workers in each week.

The curves in Fig. 2 are based on the total sickness absence, but it is also necessary to know whether the incidence of sickness in the main disease categories followed the same course. The appropriate curves are given in Fig. 3.

All the curves showed a tendency to rise during the first two months of the period and also in the last week, but apart from these features they had little in common.

Considering first the diseases of the respiratory system, it will be seen that the first crop of colds began to appear towards the end of September and reached a maximum early in October. This seems to be a fairly regular seasonal phenomenon and is usually followed by a temporary improvement. From November onwards, colds again became more frequent and, together with a comparatively small but gradually increasing number of influenza cases, they reached a high point in the last week of the year. As a rule, the incidence of

colds and influenza continues to increase until February or March, after which there is a sharp fall. The curve for other respiratory diseases showed the same general trend up to the end of October, but afterwards there was very little change.

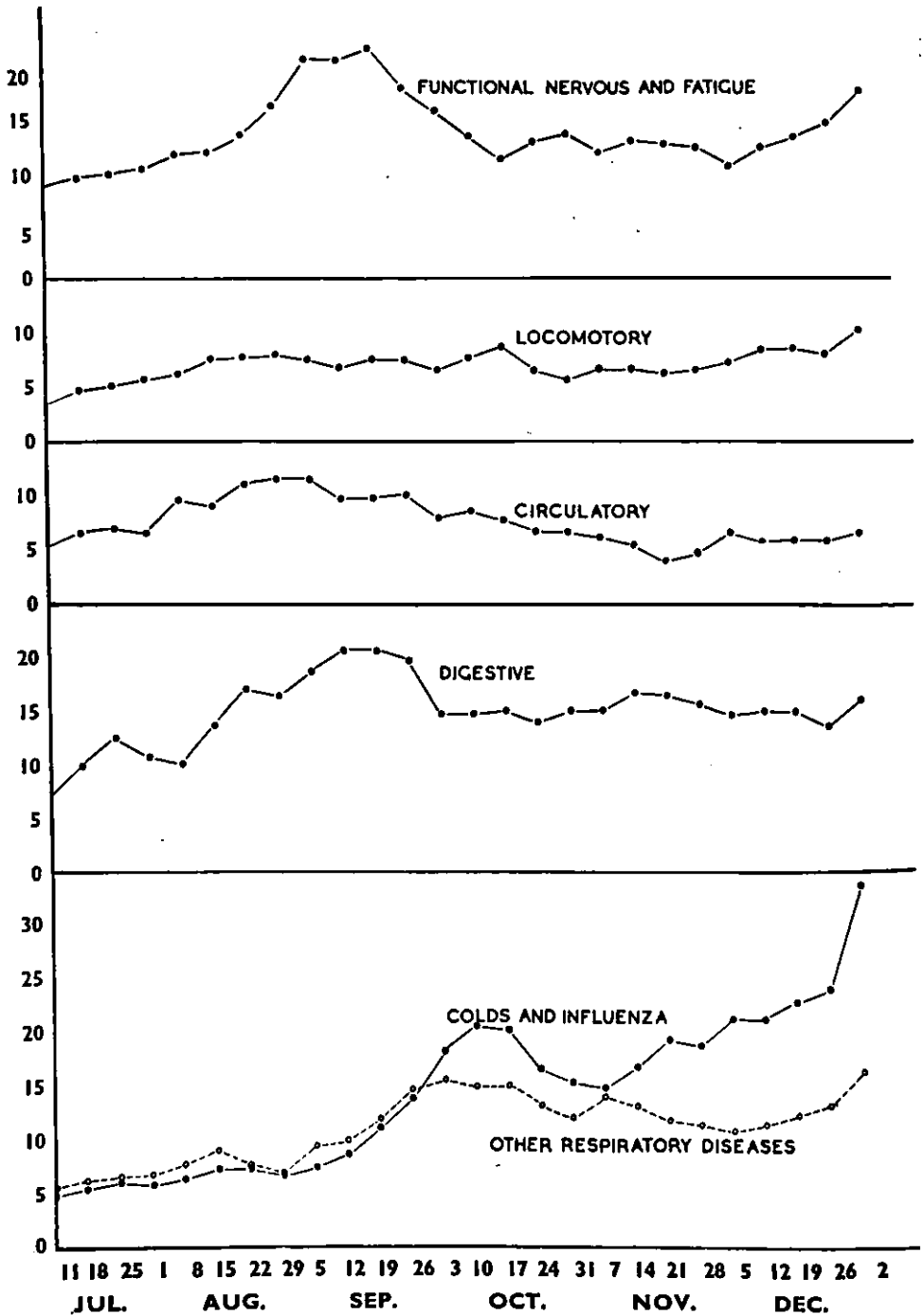


FIG. 3.—Average number of cases of sickness absence per 1,000 workers in each week in the main disease groups.

In the group of digestive diseases, there was an appreciable increase in the weekly number of absences from the beginning of July to the middle of September. This period included the annual holidays in July and the end of summer time on August 9th. It also coincided with the beginning of the series of military reverses in North Africa. Whether these events would be likely to affect digestion must be left to others to decide. The subsequent improvement during the latter part of September was followed by a steady rate of absence to the end of the period.

The general trend of the curve for diseases of the digestive system was very similar to that for functional nervous disorders. This resemblance suggests the presence of some common factor which determined the frequency of sickness absence in these two disease groups. It may, for instance, be connected with seasonal changes or with the stresses and strains of external events. It is, however, fairly certain that no sharp distinction can be made between some of the ailments included in the two groups, since several of those diagnosed as "dyspepsia"—and consequently included in the group of digestive diseases—were probably of the functional nervous type. There was also some similarity between the weekly variations of the circulatory group of diseases (mainly anaemia) and those of the digestive and functional nervous groups.

The weekly variations were least in the group of locomotory ailments, though the number of cases tended to increase in the last two months of the year.

The curves in general illustrate the variations in the frequency of sickness absence for different groups of diseases during a limited period. They also indicate the importance of collecting similar records from larger groups over a number of years. Such records would show the nature and extent of general, group and specific factors on the health of workers employed under different conditions of work in different parts of the country. This knowledge is a necessary prelude to any systematic attempt to reduce the amount and severity of sickness among industrial workers.

(ii) *Number of days of sickness*

The average number of days of sickness absence per worker during the period of six months is given in Table II. In compiling this and in other similar tables, the period of sickness has been reckoned as from the first to the last day of absence and not as the number of working days lost. The computation of the latter figure would, in some groups, have been very troublesome and probably impossible. Thus, in Factory E, some workers were on a three-shift system, some on a two-shift and some on a permanent day or night shift. Further, a number of workers changed from one shift system to another during the period covered by the results. Finally, women on the three-shift system worked seven shifts per week when on the morning shift; five when on the afternoon shift and six when on the night shift.

Even when the number of working days is known, the expression of sickness absence in terms of the number of working days lost may be misleading. Thus, if one factory works five days per week and another seven days, and a worker is absent for three weeks, she would be recorded as absent for 15 days in the former factory and for 21 days in the latter. A large proportion of sickness absences are of one week or multiples of a week, and the use of working days as a measure of the length of absence is permissible only when all factories work the same number of shifts per week. This source of error does not arise when the number of working days lost is expressed as a percentage of the total number of working days possible, but, as in the example given above, the latter figure may be difficult to determine.

TABLE II

Average number of days of sickness per worker in the period of six months

Disease group	Number of days		
	Married	Single	Both
Respiratory	3.55	2.80	3.22
Digestive	2.36	1.72	2.08
Circulatory (including diseases of the blood)	1.29	0.66	1.01
Locomotory	1.38	0.63	1.06
Nervous	2.22	1.22	1.78
" Fatigue "	1.72	0.73	1.29
Generative	0.82	0.25	0.57
Skin	0.52	0.45	0.49
Accidents (at work)	1.10	0.39	0.79
Accidents (away from work)	0.46	0.22	0.36
Miscellaneous	1.06	0.92	1.00
No diagnosis	0.97	0.58	0.80
All groups	17.45	10.57	14.45
Number of workers.. .. .	2,545	1,997	4,542

The results show that the average number of days of sickness per worker in the period of six months was 14.45. This is equivalent to 7.8 per cent. of the total number of days in the period. The figures for married and single women were 17.45 and 10.57 days, respectively, or 9.5 and 5.7 per cent. of the total number of days. Thus the sickness absence of married women exceeded that of single women by 65 per cent. This is higher than the corresponding difference between the number of cases of sickness (48 per cent.) as shown in Table I, hence it follows that the absences of married women were not only more numerous but were also longer than those of single women. The increase in the amount of time lost by married women was particularly noticeable in diseases of the generative system, fatigue and locomotory groups, and in absence due to accidents.

The relative amount of sickness absence in the different disease groups was, on the whole, fairly similar to the relative number of absences (Table I). There were, however, certain differences which are shown more clearly in Table III.

(iii) *Length of absences*

The average length of the individual absences is given in Table III.

TABLE III

Average length (in days) of the individual absences

Disease group	Length of absences		
	Married	Single	Both
Respiratory	13.4	13.3	13.4
Digestive	17.6	18.4	17.9
Circulatory (including diseases of the blood)	24.0	19.3	22.4
Locomotory	19.5	15.0	18.1
Nervous	18.2	17.4	18.0
" Fatigue "	26.6	26.2	26.4
Generative	26.4	20.5	25.0
Skin	16.6	15.6	16.2
Accidents (at work)	18.3	13.7	17.1
Accidents (away from work)	20.8	13.8	18.3
Miscellaneous	13.8	13.7	13.8
No diagnosis	19.0	18.3	18.8
All groups	17.8	15.9	17.1
Number of workers.. .. .	2,545	1,997	4,542

The figures were obtained by dividing the total number of days lost in the period of six months by the total number of absences. Sometimes an absence began before or continued after the six months, and these extensions were not included in the total number of days lost. Hence the figures in Table III are a little too low. Subject to this limitation, the results show that the average length of all the absences was 17·1 days and was longer for married than for single women by about 12·0 per cent. The increase for married women was most marked in absences due to accidents and to diseases of the generative, circulatory and locomotory groups.

A scrutiny of the results showed that the shortest absences were relatively most frequent in the respiratory group, which included many cases of colds of comparatively short duration. The longest were most numerous in the "fatigue" group, in which the main treatment was rest. The results in general give some indication of the relative severity of the different types of sickness among married and single women, and among women as a whole.

(iv) *Distribution of sickness absence*

The results obtained in this inquiry have also been used to show the number of women who had up to one week, from one to two weeks, etc., of sickness

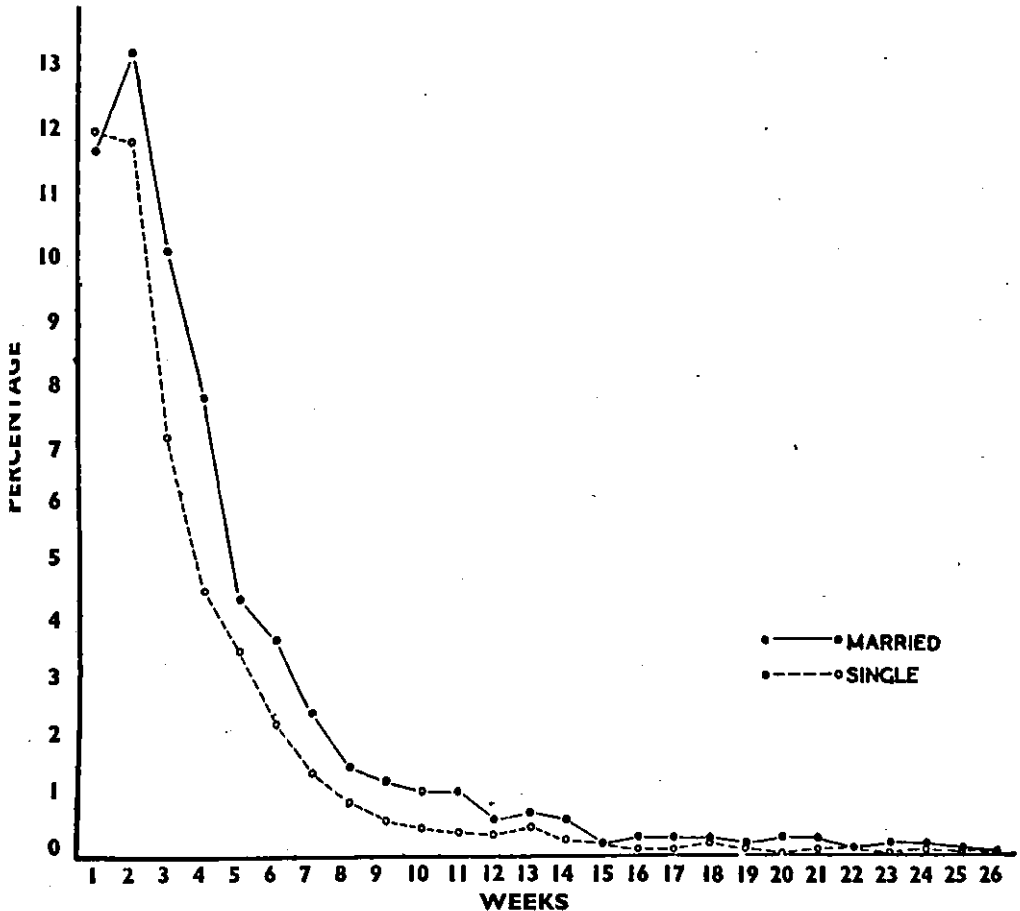


FIG. 4.—Percentage of (a) married women and (b) single women who had from 0 to 1 week, 1 to 2 weeks, etc., of certified sickness in the period of six months.

absence in the period of six months. The figures have been expressed as percentages of the total number of (a) married women, and (b) single women in the group, and are given in Fig. 4.

The percentage of women who had no sickness absence in the period of six months was 45.3; the corresponding figures for married and single women were 38.4 and 54.0, respectively. A further 25 per cent. were absent for not more than two weeks, and the remainder from two to twenty-six weeks. Among those who were absent, a total loss of from one to two weeks was the most frequent for married women, but for single women it was rather less. Beyond this point, the frequency curves for both married and single women showed the same trend, but the general level was higher for married than for single women.

In this group of workers, 16.3 per cent. of the women were responsible for approximately two-thirds of the total time lost through sickness.

(v) *Long sickness absences*

Since long absences were responsible for a substantial proportion of the total time lost through sickness, a more detailed analysis of their number and nature seemed desirable. The records have accordingly been analysed to show the percentage of women who had single absences of more than twenty-eight days in the period of six months. The figures for each of the main disease groups are given in Table IV.

TABLE IV

Percentage of (a) married women, (b) single women, and (c) both combined, who had single absences of more than 28 days

<i>Disease group</i>	<i>Married</i>	<i>Single</i>	<i>Both</i>
Respiratory	3.6	3.1	3.4
Digestive	2.8	2.0	2.5
Circulatory (including diseases of the blood)	2.0	1.0	1.6
Locomotory	1.7	0.7	1.3
"Nerves" and "Fatigue"	3.1	1.3	2.3
Generative	1.0	0.2	0.6
Skin	0.8	0.4	0.6
Accidents	1.0	0.4	0.7
Miscellaneous	1.2	0.5	0.9
No diagnosis	0.7	0.3	0.5
All groups	17.9	9.9	14.4

Thus the percentage of women who had long absences was 14.4, but the figure was much higher for married than for single women.

Diseases of the respiratory and digestive systems and those due to "nerves" and "fatigue" were the most frequent. The respiratory group included a large proportion of bronchitis and influenza cases, while, in the digestive group, gastritis was the most common. The group labelled "nerves" and "fatigue" consisted almost entirely of illnesses diagnosed as "nervous debility" and "general debility". Most of the absences in the circulatory group were due to "anaemia".

An age distribution of women who had long absences is given below. The figures are percentages of the total number of women in each age group.

	Age groups						
	Married				Single		
	15-24	25-34	35-44	45+	15-24	25-34	35+
Number in group	499	983	815	248	1,253	514	230
Percentage with long absences	19.0	17.9	18.3	13.7	9.0	11.3	11.7

The percentage of married women who had long absences tended to decrease as age increased except in the age group 35 to 44, but single women showed the opposite tendency.

A distribution of the women according to length of service gave the following figures:—

	Years of service					
	Married			Single		
	0-1	1-2	2-3	0-1	1-2	2-3
Number in group	1,566	695	284	956	729	312
Percentage with long absences	17.3	18.3	19.7	9.7	9.7	10.9

These figures show that women who had been employed since the early stages of the war had the highest proportion of long absences. Among married women the proportion increased as the length of service increased, but among single women the increase was limited to those with the longest service.

(vi) Number discharged because of ill-health

The figures in the preceding tables refer to women who were on the pay-roll during the whole of the period covered by the results: hence they do not include those discharged during the period for reasons of ill-health. In order to complete the picture of sickness absence, some reference to the number of women so discharged is necessary. The information needed for this purpose was obtained from the factory records of labour wastage, and is summarised in Table V. The figures refer to all the women in the five factories who were discharged as medically unfit¹ during the period of six months, and they show, for each disease group, the number discharged expressed as a percentage of the average number employed.

¹ i.e. all the women discharged and not only those in the sample of 4,542 women.

TABLE V

Percentage of (a) married women, (b) single women, and (c) both combined, who were discharged as medically unfit during the period of six months

<i>Disease group</i>	<i>Married</i>	<i>Single</i>	<i>Both</i>
Respiratory	0·37	0·37	0·37
Digestive	0·26	0·16	0·22
Circulatory (including diseases of the blood)	0·45	0·24	0·36
Locomotory	0·24	0·02	0·15
"Nerves" and "fatigue"	0·82	0·40	0·62
Generative	0·17	0·03	0·11
Skin	0·08	0·09	0·08
Eye, ear, nose, teeth	0·07	0·06	0·06
Glandular	0·04	0·02	0·03
Urinary	0·06	0·04	0·05
Accidents	0·01	0·01	0·01
Miscellaneous	0·16	0·14	0·15
No diagnosis	0·40	0·13	0·28
All groups	3·13	1·71	2·49

The total number of women discharged on medical grounds during the period of six months was 610, or approximately 2·5 per cent. of all the women employed. The corresponding percentages for married and single women were 3·13 and 1·71, respectively.

The figures in Table V show that "nerves" and "fatigue" were by far the most frequent cause of discharge, especially among married women. They accounted for one-quarter of the total number of discharges, but the proportion was higher for married than for single women. Most of the cases in this group were diagnosed as "nervous debility," but "nervous breakdown," "neurasthenia" and "general debility" were also fairly common. It is also probable that many of the cases where no diagnosis was given were of the functional nervous or "fatigue" type. "Nervous debility" was also frequently diagnosed in conjunction with "anaemia," but since the certificate stated "anaemia and nervous debility," the former was regarded as the primary cause of the illness. Such cases were accordingly included in the diseases of the circulatory system and not in the group of functional nervous disorders.

The next in order of importance were diseases of the respiratory and circulatory systems. The most frequent illnesses in the former group were bronchitis, bronchial asthma, tuberculosis and post-influenzal debility. In the latter, almost half the certificates gave "anaemia" as the main cause of the illness.

Diseases of the digestive system (mainly gastritis) and of the locomotory system (mainly rheumatism) were also fairly numerous, but the latter were limited almost entirely to married women.

In general, the proportion of women discharged in the different disease groups bore some resemblance to the relative frequency and amount of sickness absence in those groups (Tables I and II). The exclusion of these women from the records reduced the sickness rate, especially in the groups of diseases classified as functional nervous and fatigue, respiratory and digestive.

B—Sickness Absence and Age

The relation between sickness absence and age was ascertained by arranging the workers in age groups, and then finding for each group the frequency and amount of sickness absence in the period of six months.

(i) *Number of absences*

The number of workers and the average number of absences per worker in each age group are given in Table VI.

TABLE VI

Number of workers and average number of absences per worker in each age group

Age group	Number of workers			Average number of absences per worker			Ratio	
	Married	Single	Both	Married	Single	Both	Married	Single
15-19 ..	38	355	393	1.03	0.52	0.57	1.98	1.00
20-24 ..	461	898	1,359	1.06	0.70	0.82	1.51	1.00
25-29 ..	508	321	829	1.07	0.75	0.95	1.43	1.00
30-34 ..	475	193	668	1.04	0.70	0.94	1.49	1.00
35-39 ..	452	122	574	0.95	0.68	0.89	1.40	1.00
40-49 ..	528	80	608	0.86	0.49	0.81	1.76	1.00
50-59 ..	83	28	111	0.61	0.32	0.54	1.91	1.00
All ages	2,545	1,997	4,542	0.98	0.66	0.84	1.48	1.00

In this sample, there were more married than single women and they were more evenly distributed over the different age groups. A large majority (78.8 per cent.) of the single women were under 30, but only 39.6 per cent. of the married women were below that age. Since the figures are based on random samples taken from approximately 20,000 women employed in different parts of the country, they give some indication of the age distribution of women workers at the end of 1942. They also illustrate the extent to which married women have been recruited for industrial work.

As regards sickness absence, the results in Table VI show that, for women as a whole, the frequency increased up to the age group 25 to 30 and then began to decrease, very slowly at first but more quickly afterwards. The general trend was similar for both married and single women, but the rate of change was less for married women.

In the lowest age group (15 to 19), absences of married women exceeded those of single women by 98 per cent. From 20 to 39, the excess varied from 40 to 51 per cent., but in the two highest age groups it was 76 and 91 per cent. respectively. The number of single women in the highest age groups was, however, comparatively small, as was the number of married women in the lowest age group. Despite this limitation, it is clear that, age for age, married women were absent much more frequently than single women. Since the type and conditions of work were the same for both married and single women, it follows that the higher frequency of sickness absence among the former was due to the effects of the additional strains and stresses of married life. The difference between the figures is a measure of these effects, and not of the effects of industrial work on married women. To demonstrate the latter, it would be necessary to compare the sickness rate of married women before and after they entered industry, or that between married women in industry and a corresponding group who remained at home. It must also be remembered that some single women had arduous home duties and responsibilities, while some married women had few or none.

The preceding results show the average number of absences per worker in each age group. Some workers, however, were never absent, while others were absent for a varying number of times in the period of six months. An analysis of the results from this standpoint gave the figures in Table VII.

TABLE VII

Percentage of workers in each age group who were never absent or were absent for a varying number of times in the period of six months

Age group	Number of times absent											
	Married				Single				Both			
	0	1	2	3+	0	1	2	3+	0	1	2	3+
15-19	21.0	55.3	23.7	0.0	58.9	32.4	6.8	2.0	55.2	34.6	8.4	1.8
20-24	33.0	38.2	20.8	8.0	52.1	30.9	12.5	4.5	45.6	33.4	15.3	5.7
25-29	34.9	37.6	17.5	10.0	52.4	29.3	12.1	6.2	41.6	34.4	15.4	8.6
30-34	35.4	36.9	18.3	9.5	49.8	38.8	5.2	6.2	39.8	37.4	14.5	8.5
35-49	39.8	35.9	15.9	8.4	50.8	36.9	7.4	4.9	42.2	36.1	14.1	7.7
40-49	46.2	33.1	13.2	7.4	67.5	21.3	10.0	1.2	49.0	31.6	12.8	6.6
50-59	57.8	29.0	7.2	6.0	75.1	17.8	7.1	0.0	62.2	26.1	7.2	4.5
All ages	38.4	36.3	16.9	8.4	54.0	31.5	10.2	4.3	45.3	34.2	13.9	6.6

The results show that the percentage of women who had no sickness absence during the period of six months decreased up to the age group 30 to 34 and then increased. Among married women the percentage tended to rise with increasing age, but among single women there was first a fall, then a period of little change and finally a sharp rise.

The general trend of the figures showing the frequency of absences in the different age groups was, for married women with one or two absences, the reverse of that for no absences. The absence figures of single women were more irregular, and there was little evidence of their reciprocal relationship.

(ii) *Number of days of sickness*

The average number of days of sickness per worker in each age group during the period of six months is given in Table VIII.

TABLE VIII

Average number of days of sickness per worker in each age group

Age group	Number of workers			Average number of days of sickness per worker			Ratio	
	Married	Single	Both	Married	Single	Both	Married	Single
15-19 ..	38	355	393	18.8	8.3	9.3	2.27	1.00
20-24 ..	461	898	1,359	18.9	10.9	13.6	1.73	1.00
25-29 ..	508	321	829	16.3	9.8	13.8	1.66	1.00
30-34 ..	475	193	668	18.3	12.4	16.6	1.48	1.00
35-39 ..	452	122	574	17.2	14.3	16.6	1.20	1.00
40-49 ..	528	80	608	17.3	10.9	16.5	1.59	1.00
50-59 ..	83	28	111	13.0	8.5	11.9	1.53	1.00
All ages	2,545	1,997	4,542	17.4	10.6	14.4	1.64	1.00

The results show that the average number of days of sickness per worker increased up to the age group 30 to 34 and then remained steady, except for a decrease in the highest age group. The trend for married women was rather irregular, but on the whole it tended to decrease with increasing age. That for single women was still more variable and tended to rise up to the age of 40 or thereabouts. For both groups, there was a decrease in the age group 25 to 29. This occurred in all the component factory groups, and was also observed in a previous investigation on sickness among operatives in the cotton spinning industry.¹ The decrease in question was not associated with fewer cases of sickness (Table VI); hence it must be due to shorter absences.

The results in Table VIII also show that the difference between the amount of sickness absence for married and single women (as shown in the ratio column) decreased up to the age group 35 to 39 and then increased. Married women under 25 lost 86 per cent. more time than single women of the same age, but in the age group 35 to 39, the figure had fallen to 20 per cent. The validity of the larger differences between married and single women above the age of 40 (Table VIII) is doubtful, because of the comparatively small number of women in these age groups.

(iii) *Length of absences*

The average length of the sickness absences was ascertained by dividing the total number of days of sickness for each age group by the number of absences in each group. The results so obtained are given in Table IX.

¹ See Table C, p. x. "Sickness amongst Operatives in Lancashire Cotton Spinning Mills", *Industry, Health, Res. Bd. Rep.* No. 59. H.M. Stationery Office, 1930. 1s. 6d. net (by post 1s. 8d.).

TABLE IX

Average length (in days) of the sickness absence in each age group

Age group	No. of workers			Average length of sickness absences		
	Married	Single	Both	Married	Single	Both
15-19	38	355	393	18.3	15.9	16.3
20-24	461	898	1,359	17.9	15.5	16.5
25-29	508	321	829	15.2	13.1	14.5
30-34	475	193	668	17.6	17.6	17.6
35-39	452	122	574	18.1	21.0	18.6
40-49	528	80	608	20.2	22.3	20.4
50-59	83	28	111	21.2	26.6	22.0
All ages ..	2,545	1,997	4,542	17.8	15.9	17.1

Thus, the average length of the sickness absences decreased for both married and single women up to the age group 25 to 29, and then increased. A comparison of these results with those of Table VI shows that the average length of the absences in successive age groups tended to vary inversely with the number of absences. This supports the view that one of the reasons for the decrease in the number of cases of sickness absence above the age of 30 was the increased length of the absences above that age. It also confirms the deduction (above) that the decrease in the number of days of sickness in the age group 25 to 29 (Table VIII) was due to shorter and not to fewer absences.

The results in Table IX also suggest that up to the age of 30, married women had longer absences than single women, but above the age of 35, single women had the longer absences. Except for the age group 20 to 24, however, the difference between the means in each age group was not significant. This non-significance was due mainly to a few unusually long absences. Thus 2.5 per cent. of the married women's absence and 1.0 per cent. of the single women's exceeded three months. If these are excluded, then the difference between the means in the age groups 25 to 29 and 35 to 39 also become significant.

(iv) *Type of sickness*

The general relation between age and the amount of sickness absence in each of the main disease groups is shown in Table X. In order to increase the number of cases in each age group, the women have been classified as under 25, between 25 and 35, and over 35.

The main purpose of this analysis was to show whether the variations in sickness absence with age were the same in different disease groups, or whether they deviated appreciably from the general trends shown in Tables VI, VIII and IX. Although only three age groups have been used, the number of cases of sickness absence in some groups was small and the results must be accepted with reserve.

In the respiratory, digestive, circulatory and locomotory groups, there were no significant differences between the sickness rates of the different age groups, but in the nervous and fatigue groups, married women under 25 had relatively more absences and lost time than those over 35. The corresponding figures for single women suggest the opposite tendency, but the differences were not statistically significant.

TABLE X

Relation between age and sickness absence in the main disease groups for married women (M), single women (S) and both combined (C)

Age group	Number of cases			Average number of cases per worker			Average number of days per worker			Average length of absences in days		
	M	S	C	M	S	C	M	S	C	M	S	C
							<i>Respiratory system.</i>					
Under 25 ..	139	274	413	.279	.219	.236	4.25	3.00	3.36	15.3	13.7	14.2
25 to 35 ..	273	115	388	.278	.224	.259	3.26	2.70	3.07	11.8	12.0	11.9
Over 35 ..	260	33	293	.245	.143	.227	3.48	1.97	3.21	14.2	13.7	14.2
							<i>Digestive system.</i>					
Under 25 ..	65	115	180	.130	.092	.103	1.89	1.52	1.63	14.5	16.6	15.8
25 to 35 ..	154	49	203	.157	.095	.136	2.68	1.82	2.39	17.1	19.1	17.6
Over 35 ..	121	23	144	.114	.100	.111	2.28	2.62	2.34	20.0	26.2	21.0
							<i>Circulatory system.</i>					
Under 25 ..	25	44	69	.051	.035	.039	1.11	0.72	0.83	22.2	20.4	21.1
25 to 35 ..	65	20	85	.062	.039	.057	1.68	0.68	1.34	25.5	17.6	23.7
Over 35 ..	47	5	52	.042	.022	.040	1.01	0.34	0.89	22.9	15.8	22.2
							<i>Locomotory system.</i>					
Under 25 ..	31	46	77	.062	.037	.044	1.54	0.57	0.85	24.8	15.5	19.3
25 to 35 ..	71	26	97	.072	.051	.065	1.28	0.75	1.10	17.7	14.9	17.0
Over 35 ..	79	12	91	.074	.052	.070	1.41	0.71	1.21	19.0	13.6	18.3
							<i>Nervous system.</i>					
Under 25 ..	79	85	164	.158	.068	.094	2.77	1.07	1.56	17.5	15.8	16.6
25 to 35 ..	133	38	171	.135	.074	.114	2.41	1.32	2.03	17.8	17.9	17.8
Over 35 ..	98	17	115	.092	.074	.089	1.79	1.80	1.79	19.3	24.3	20.1
							<i>" Fatigue "</i>					
Under 25 ..	48	29	77	.096	.023	.044	2.46	0.52	1.08	25.6	22.7	24.5
25 to 35 ..	69	15	84	.070	.029	.056	1.79	0.82	1.45	25.4	28.1	25.9
Over 35 ..	48	12	60	.045	.052	.046	1.32	1.64	1.38	29.2	31.4	29.7

(v) *Number discharged because of ill-health*

The age distribution of all the women in the five factories who were discharged as medically unfit¹ in the period of six months is shown in Table XI. For purposes of comparison, the age distribution of the 4,542 women in the original sample is also given.

TABLE XI

Age distribution of women (a) discharged as medically unfit during the period of six months, and (b) in the sample used in this survey

Age group	Married				Single			
	Number discharged		Number in sample		Number discharged		Number in sample	
	Number in group	Per cent. of total	Number in group	Per cent. of total	Number in group	Per cent. of total	Number in group	Per cent. of total
15-19 ..	7	1.6	38	1.5	24	13.0	355	17.8
20-24 ..	80	18.8	461	18.1	87	47.3	898	45.0
25-29 ..	81	19.0	508	20.0	28	15.2	321	16.1
30-34 ..	62	14.6	475	18.7	19	10.3	193	9.7
35-39 ..	67	15.7	452	17.8	13	7.1	122	6.1
40-49 ..	94	22.1	528	20.7	9	4.9	80	4.0
50-59 ..	35	8.2	83	3.3	4	2.2	28	1.4
All ages	426	100.0	2,545	100.1	184	100.0	1,997	100.1

It will be remembered that the women discharged during the period were not included in the sample which forms the subject of this report. A comparison of these two groups shows that the age distribution of those discharged on grounds of ill-health was significantly different for married women from those in the sample, chiefly owing to the high proportion of discharges at ages over 50. The corresponding difference for single women was not significant.

The discharge of workers who were most prone to sickness will obviously lower the factory sickness rate, and the effect on the sickness rate of the different age groups will be roughly proportional to the percentage discharged. Thus the figures in Table XI must be taken into account when considering the possible causes of the variations in the frequency, amount and length of sickness absence of different age groups (Tables VI, VIII and IX).

C—Sickness Absence and Length of Service

(i) *Number and length of absences, and number of days of sickness*

At the time of this investigation, almost all the women in the five factory groups had been employed for not more than three years, hence any comparison between length of service and sickness absence must be limited to the war period. This, however, is not without importance, since it should give some indication of the effect of war-time conditions of work on health and fitness. The workers have accordingly been grouped on the basis of their length of service, and the results obtained are given in Table XII.

It will be noted that out of a total of 4,542 women, more than half (55.5 per cent.) had not more than one year of service. The corresponding figures for

¹i.e. all the women discharged and not only those in the sample of 4,542 women.

TABLE XII

Sickness absence of married women (M), single women (S), and both groups combined (C) in each length of service group

<i>Years of service</i>	<i>Number of workers</i>			<i>Average number of absences per worker</i>			<i>Average number of days of sickness per worker</i>			<i>Average length of sickness absences</i>		
	<i>M</i>	<i>S</i>	<i>C</i>	<i>M</i>	<i>S</i>	<i>C</i>	<i>M</i>	<i>S</i>	<i>C</i>	<i>M</i>	<i>S</i>	<i>C</i>
0-1	1,566	956	2,522	1.04	0.69	0.90	17.2	10.9	14.8	16.6	15.7	16.4
1-2	695	729	1,424	0.91	0.67	0.79	17.5	9.7	13.5	19.2	14.6	17.2
2-3	284	312	596	0.86	0.57	0.71	18.7	11.7	15.0	21.8	20.5	21.3
All groups ..	2,545	1,997	4,542	0.98	0.66	0.84	17.4	10.6	14.4	17.8	15.9	17.1

TABLE XIII

Relation between length of service and sickness absence in the main disease categories for married women (M), single women (S) and both combined (C)

Years of service	Number of cases			Average number of cases per worker			Average number of days per worker			Average length of absences in days		
	M	S	C	M	S	C	M	S	C	M	S	C
							<i>Respiratory system.</i>					
0-1	446	210	656	.285	.220	.260	3.41	2.79	3.17	12.0	12.7	12.2
1-2	168	155	323	.241	.213	.227	3.75	2.71	3.22	15.5	12.8	14.2
2-3	58	57	115	.204	.183	.193	3.81	3.06	3.42	18.7	16.7	17.7
							<i>Digestive system.</i>					
0-1	216	91	307	.138	.095	.122	2.32	1.78	2.12	16.8	18.7	17.4
1-2	90	71	161	.130	.097	.113	2.33	1.69	2.01	18.0	17.4	17.7
2-3	34	25	59	.120	.080	.099	2.64	1.62	2.11	22.1	20.2	21.3
							<i>Circulatory system.</i>					
0-1	80	33	113	.051	.035	.045	1.08	0.60	0.89	21.1	17.3	20.0
1-2	45	27	72	.065	.037	.051	1.88	0.79	1.32	29.0	21.2	26.1
2-3	12	9	21	.042	.029	.035	1.04	0.60	0.81	24.5	20.7	22.9
							<i>Locomotory system.</i>					
0-1	122	49	171	.078	.051	.068	1.42	0.75	1.16	18.2	14.6	17.2
1-2	45	26	71	.065	.036	.050	1.26	0.48	0.86	19.5	13.6	17.3
2-3	14	9	23	.049	.029	.039	1.52	0.63	1.06	30.9	22.0	27.4
							<i>Nervous system.</i>					
0-1	176	63	239	.112	.066	.095	1.94	1.19	1.65	17.2	18.0	17.4
1-2	85	47	132	.122	.064	.093	2.26	0.96	1.60	18.5	14.9	17.2
2-3	49	30	79	.173	.096	.133	3.68	1.93	2.77	21.3	20.1	20.9
							<i>" Fatigue "</i>					
0-1	95	28	123	.061	.029	.049	1.49	0.73	1.20	24.5	25.0	24.6
1-2	44	18	62	.063	.025	.044	1.70	0.54	1.11	26.8	22.0	25.4
2-3	26	10	36	.092	.032	.060	3.10	1.15	2.08	33.8	36.0	34.4

married and single women were 61·5 and 47·9 per cent. respectively. The proportion with two to three years of service was 13·1 per cent., but in this group the figure for married women (11·2 per cent.) was less than for single women (15·6 per cent.).

As regards sickness absence, the results in Table XII show that the average number of cases per worker decreased as the length of service increased. The figure for women with two to three years of service, as compared with that for women with not more than one year, showed a decrease of 21·1 per cent. In other words, the frequency of sickness absence was appreciably less among women who had been employed since the early stages of the war. On the other hand, the average number of days of sickness per worker, and the average length of the absences, were greatest in the longest service group.

(ii) *Type of sickness*

The relation between sickness absence and length of service has also been determined for each of the main disease groups, and the results obtained are given in Table XIII.

Thus, on the whole, the general trends of the figures in each disease group were fairly similar to the corresponding trends in Table XII. The main difference was the increase in the frequency of cases due to "nerves" and "fatigue" among workers with two to three years of service. This increase was completely masked when the results for all the disease groups were combined and averaged (Table XII).

(iii) *Number discharged because of ill-health*

The total number of women in the five factories who were discharged for health reasons¹ during the period of six months have been classified according to length of service in Table XIV. For purposes of comparison, the length of service of the 4,542 women in the original sample is also given.

TABLE XIV

Length of service of women (a) discharged as medically unfit during the period of six months, and (b) in the original sample

Years of service	Married				Single			
	Number discharged		Number in sample		Number discharged		Number in sample	
	Number in group	Per cent. of total	Number in group	Per cent. of total	Number in group	Per cent. of total	Number in group	Per cent. of total
0-1 ..	215	50·5	1,566	61·5	85	46·2	956	47·9
1-2 ..	145	34·0	695	27·3	61	33·2	729	36·5
2-3 ..	66	15·5	284	11·2	38	20·7	312	15·6
All groups	426	100·0	2,545	100·0	184	100·1	1,997	100·0

The length of service distribution of those discharged on grounds of ill-health was significantly different for married women from those in the sample. Those discharged, as compared with the original sample, included a smaller proportion with less than one year of service and a larger proportion with one to three years of service. The corresponding figures for single women showed no significant difference.

¹ i.e. all the women discharged and not only those in the sample of 4,542 women.

D—Age, Length of Service and Sickness Absence

It is evident from the preceding sections that the relation between sickness absence and age was complicated by the effects of length of service, while that between sickness absence and length of service was obscured by the effects of age. In order to clarify the situation, the sickness absence in each length of service group has been classified broadly according to age, and the results of this two-fold classification are given in the tables which follow. They are preceded by a table showing the distribution of the women according to age and length of service.

(i) *Distribution of workers*

A classification of the women according to age and length of service is given in Table XV.

TABLE XV

Classification of workers according to age and length of service

Years of service	Age groups								
	Married					Single			
	15-24	25-34	35-44	45+	All ages	15-24	25-34	35+	All ages
0-1 ..	246	575	543	202	1,566	551	264	141	956
1-2 ..	154	296	212	33	695	460	202	67	729
2-3 ..	99	112	60	13	284	242	48	22	312
All groups	499	983	815	248	2,545	1,253	514	230	1,997

The figures show that, in each age group, the number of women decreased as the length of service increased. The rate of decrease became more marked as the age increased.

In each length of service group the number of married women increased up to the age group 25 to 34 and then decreased. The number of single women was highest in the age group 15 to 24. It will also be noted that in each successive year of the war, the proportion of older women recruited increased.

(ii) *Number of absences*

The average number of absences per worker, arranged according to age and length of service, is given in Table XVI.

TABLE XVI

Average number of absences per worker in relation to age and length of service

Years of service	Age groups								
	Married					Single			
	15-24	25-34	35-44	45+	All ages	15-24	25-34	35+	All ages
0-1 ..	1.08	1.13	1.01	0.79	1.04	0.68	0.73	0.58	0.69
1-2 ..	1.04	0.98	0.77	0.67	0.91	0.63	0.74	0.55	0.67
2-3 ..	1.03	0.88	0.58	0.54	0.86	0.60	0.46	0.55	0.57
All groups	1.06	1.06	0.91	0.76	0.98	0.65	0.73	0.57	0.66

The average number of cases of sickness absence per worker was highest among women in the age group 25 to 34 with less than one year of service. In each age group, the number decreased as the length of service increased, but the rate of decrease varied in the different age groups. For married women as a whole, the decrease was limited mainly to those over 25 years of age, while for single women it was limited to ages under 35. In general, the younger married women and the older single women showed the least improvement with increasing years of service.

The results also show that the absence rate for married women with one to three years of service decreased as age increased. For those with less than one year of service, it was highest in the age group 25 to 34 and then decreased. For single women with up to two years of service, the absence rate was highest in the age group 25 to 34. In the longest service group it was highest for women under 25. In general, the rate of decrease for married women was more marked as the length of service increased, but among the large majority of single women there was practically no difference in the rate of change with age.

(iii) *Number of days of sickness*

The average number of days of sickness per worker, classified according to age and length of service, is given in Table XVII.

TABLE XVII

Average number of days of sickness per worker in relation to age and length of service

Years of service	Age groups								
	Married					Single			
	15-24	25-34	35-44	45+	All ages	15-24	25-34	35+	All ages
0-1 ..	18.2	17.0	17.8	15.1	17.2	10.7	10.7	11.7	10.8
1-2 ..	19.5	17.3	16.5	16.8	17.5	8.9	10.6	12.7	9.7
2-3 ..	20.0	18.5	16.8	18.5	18.7	11.2	11.9	16.2	11.7
All groups	18.9	17.3	17.4	15.5	17.4	10.1	10.8	12.4	10.6

The results show that, except for married women between the ages of 35 and 44, the average number of days of sickness per worker was highest in the longest service group. Among the younger single women there was a decrease in the group with one to two years of service. The rate of change with age was most marked among married women over 45 and among single women over 35.

The results in Table XVII also show that, in each length of service group, the younger married women (under 25) lost most time through sickness. Among the single women, the amount lost tended to increase with age.

(iv) *Length of absences*

The average length of the individual absences, classified according to age and length of service, is given in Table XVIII.

TABLE XVIII

Length of absences (in days) arranged in relation to age and length of service

Years of service	Age groups								
	Married					Single			
	15-24	25-34	35-44	45+	All ages	15-24	25-34	35+	All ages
0-1 ..	16.9	15.0	17.7	19.2	16.6	15.8	13.8	20.1	15.7
1-2 ..	18.7	17.8	21.4	25.3	19.2	13.7	14.3	23.0	14.6
2-3 ..	19.4	20.9	28.9	34.3	21.8	18.8	26.0	29.7	20.5
All groups	17.9	16.3	19.0	20.4	17.8	15.6	14.7	21.8	15.9

The results show that, except for single women under 25, the average length of the absences increased as the length of service increased. Among married women, the rate of increase was greater in each successive age group, but among single women the tendency was irregular.

The results also show that among married women with less than two years of service, and single women with less than one year, there was a fall in the age group 25 to 34 and then a rise. Among the remainder, the average length continued to increase with increasing age.

The results in this section show the separate effects of age and length of service on sickness absence. They accordingly have a bearing on those given in Sections B and C and should help to explain some of the tendencies observed therein.

E—Miscellaneous Factors

(i) *Type of work*

The women included in this inquiry were employed on many different types of work, but the main groups were production workers, examiners and clerical workers. The amount of sickness absence for each of these groups is given in Table XIX.

TABLE XIX

Amount of sickness absence in different occupational groups

Group	Number in group			Average number of days of sickness per worker		
	Married	Single	Both	Married	Single	Both
Production ..	1,735	1,540	3,275	18.4	11.2	14.9
Examining ..	660	252	912	16.0	9.8	14.4
Clerical ..	62	150	212	7.0	5.0	5.5

Thus the production workers lost a little more time than the examiners, but both these groups lost much more time than the clerical workers.

The production workers were employed mainly on machines, but a certain number were on hand work. Some of the operations were fairly heavy, but the majority were medium or light. The workers in this group were paid on the basis of the amount produced: hence they could, within limits, compensate for the effect of absence on earnings by a higher rate of working.

The work of the examiners involved little physical effort, but a considerable amount of attention, discrimination and judgment. Their average age was appreciably higher than that of the production workers and, unlike the latter, they were paid according to the number of hours worked.

The lower sickness rate among clerical workers was doubtless associated with the type of worker and the general conditions of work. Compared with the production workers and examiners, the clerical workers were younger and had a better home background. Most of them had chosen, rather than been directed to their present jobs, so that they were likely to find their work more interesting and satisfying. Working conditions were also better, especially as regards the number and arrangement of the hours of work, atmospheric conditions and pressure of work. The work itself was usually more varied and was performed at a more leisurely speed, with many opportunities for unofficial rests and change of posture. Hence there was less boredom, fatigue and strain. Clerical workers in Government factories were also allowed four extra days sick leave ("Ridleys") which, when judiciously taken (e.g. at the beginning of a cold) might prevent a longer absence.

The results from each factory group have also been analysed to show the amount of sickness absence among production workers engaged on different types of work. The figures for a fairly typical group (Factory A) are given in Table XX.

TABLE XX

Amount of sickness absence in different groups of production workers

Department	Number in group			Average number of days of sickness per worker		
	Married	Single	Both	Married	Single	Both
Case	39	78	117	34.4	11.2	19.0
Bullet	64	128	192	15.8	9.8	11.8
Shell	54	46	100	14.0	5.0	9.8
Fuse	14	31	45	32.4	6.8	14.7
Inspection ..	54	72	126	14.2	7.5	10.5
Loading	16	38	54	12.7	3.5	6.3

Owing to the small number of workers in each group, the results are merely suggestive, but there is little doubt that records obtained from all the workers in each department would show significant differences which could be related to the different types and conditions of work. Such an analysis would not only direct attention to departments with high sickness rates, but should also stimulate inquiries into the possible causes and remedies.

(ii) Shift systems

In two of the factories included in this inquiry, some workers were employed on a permanent day shift, while others worked on shift systems; otherwise, the general type and conditions of work were fairly similar. The amount of sickness absence associated with these different arrangements is given in Table XXI. In Factory B, the comparison was between women on a two-shift system and on a day shift; in Factory E, it was between women on a three-shift system and on a day shift. The results for Factory B cover the last six months of 1942; those for Factory E relate to a special study of 1,000 women during three weeks in May, 1943.

TABLE XXI

Amount of sickness absence among women employed on different shift systems. (Number of days lost expressed as a percentage of the total number of days possible)

Factory	Shift system	Number in group			Average number of days of sickness per worker		
		Married	Single	Both	Married	Single	Both
B ..	Two-shift ..	354	351	705	23.7	12.9	18.4
	Day shift ..	95	128	223	20.6	9.6	14.4
E ..	Three-shift ..	214	286	500	0.94	0.56	0.72
	Day shift ..	246	254	500	0.77	0.43	0.59

In both factories, absenteeism among women on a permanent day shift was less than among women on the shift systems. These differences, based on comparatively few workers in two factories, are only suggestive, but they become more significant when it is remembered that the workers on a permanent day shift included a higher proportion of women who, because of minor ailments or inferior physique, might be expected to be more prone to sickness.

III—DISCUSSION OF RESULTS

(i) *Amount of sickness absence*

The results obtained in this investigation show that the average number of days of certified sickness per worker during the last six months of 1942 amounted to 7.8 per cent. of the total number of days in the period. The corresponding figure for a total of 184,662 women employed in 50 factories was 7.1 per cent. These figures give some indication of the amount of sickness absence among women on war work, and may help to direct attention to the importance of this factor as a cause of lost time and reduced output.

Since the figures used in the present inquiry were limited to certified sickness absence of two or more days, they do not include the numerous cases of uncertified sickness absence of short duration, which, for women, usually account for 1.5 to 2.5 per cent. of the possible hours of work. Further, in almost all factories, some workers who are absent through sickness for two or more days fail to get a medical certificate, and they are recorded as absent without permission or without reasonable excuse. Although the factories included in this study did everything possible, short of penalising the workers, to enforce the rule regarding certificates, it would be rash to assume that there were no evasions. Finally, the sickness rate was lowered by the exclusion of the sickness absence of workers who were discharged as medically unfit during the period covered by the results. The number so discharged was approximately 2.5 per cent. of the total, and if it be assumed that, on the average, they were absent for half the period, their exclusion from the records lowered the amount of sickness absence by about 1.0 per cent. On the other hand, there is a fairly widespread belief that some doctors tend to issue certificates when they are not deserved. While there is doubtless some foundation for this belief, a careful scrutiny and analysis of the certificates issued by several hundred doctors over a period of six months suggests that very few were guilty of this practice, and that the effect on recorded sickness absence was likely to be very small. Thus it is probable that the total time lost through sickness was around 10 per cent. This figure, as compared with pre-war standards, is high, and the increase is due to several causes such as the employment of a much higher proportion of

older women and married women with family responsibilities; the gradual lowering of the standard of fitness of those accepted for employment, and the increased stresses and strains associated with war-time conditions of work.

As regards the type of sickness, the most important single cause of absence was the respiratory group, mainly colds and influenza. In this respect the results agree with peace-time records, but they differ in the much higher proportion of absences due to functional nervous disorders and general debility. Diseases of the digestive system were also relatively more numerous, but it is probable that some of these had a psychological origin and should rightly be included in the nervous group. This does not mean that digestive ailments were negligible, but that they may not have been quite as numerous as the figures suggest. The indifference of many workers to the importance of a properly balanced diet might reasonably be expected to cause an increase in the number of digestive disturbances.

The relatively large number of absences in the nervous and fatigue groups is also not surprising, in view of the greatly increased stresses and strains of war work. Psychological disorders, more than any other type of illness, reflect the effects of emotional conflict, strain and fatigue; and they were naturally most frequent and severe among married women with family responsibilities, and among those who had been employed since the first year of the war. Anything that can be done to ease the position of these women, such as the provision of rest breaks in holiday centres, deserves serious consideration. A timely rest may prevent illness and reduce the amount of time lost. The fact that 16 per cent. of the women were responsible for approximately two-thirds of the time lost through sickness suggests that the special care and treatment of a comparatively few workers might effect a substantial reduction in the frequency and amount of sickness absence.

The results also show that married women, as compared with single women, had 48 per cent. more absences (Table I) and lost 65 per cent. more time through sickness (Table II). They also had longer absences than single women (Table III). These differences, which were not due to the higher average age of the married women, must be attributed to the additional strains of married life. Much has already been said about the difficulties of those married women who do factory work and run a home in their spare time. The physical and mental effort required by this dual task is undoubtedly severe, and it is not surprising that several were unable to bear the strain and were either discharged or had long periods of illness. Less attention has been given to the psychological and physiological effects of the break-up of family life caused by the absence of husbands and sons in the Forces, and in some cases by the evacuation of children. The emotional conflicts induced by this disintegration, together with the feelings of fear and insecurity when husbands and sons are exposed to danger or death, must often have effects on health greater than those produced by long periods of work. On the other hand, the strain on some married women with husbands in the Services but stationed in this country has been eased by the granting of seven days' leave every three months, and by occasional shorter leaves. Many women remarked that they never had so many holidays and doubted whether they could "carry on" without them. It should also be remembered that some married women live with their parents or other relations and have few home duties, while some single women do almost all the housework and have tasks just as onerous as those of many married women.

As already mentioned, the sickness figures for women as a whole were lowered by the discharge of those most prone to sickness. Since the rate of discharge was much higher for married than for single women, the recorded sickness absence would be affected accordingly. In other words, the exclusion from the records of medically unfit workers reduced not only the actual sickness rate but also the difference between the rates for married and single women.

(ii) *Sickness absence and age*

It might be expected that the frequency and amount of sickness absence among women would continue to increase in successive age groups; hence some explanation of the observed deviations from the expected trend is necessary.

In the first place, the proportion of women discharged for health reasons varied in the different age groups. It was relatively large among married women over 50. This would tend to reduce the sickness rate of women in that age group.

Secondly, the younger age groups (under 25) included a much higher proportion of women who were recruited in the early stages of the war and consequently might be expected to show more signs of wear and tear. On the other hand, female labour in the first year of the war was plentiful, and the physical standard of those accepted for employment was relatively high. These two factors would tend to have opposite effects on the sickness absence of women in the lower age groups, but the net result cannot be demonstrated.

Thirdly, the results in Tables VI and VIII suggest that the strains of married life diminished with increasing age. The younger married women would be more likely to have the extra work and worry associated with the care of young children. Further, a more recent inquiry has shown that the dislocation of normal married life due to the war was particularly noticeable among the younger women whose husbands were stationed abroad. This separation of man and wife, coupled with the feeling of uncertainty and insecurity, might reasonably be expected to cause strain and anxiety. In the case of newly married women, the effects were sometimes intensified by the difficulty of "setting-up house" under present conditions, or, if they were living with parents, by frustration of the urge to have a house of their own. The strain of separation and uncertainty was also felt by many of the younger single women with sweethearts overseas.

There is also reason to believe that the difficulties of early married life had a toughening effect on many women, so that subsequent worries and anxieties, whether connected with ill-health or other matters, lost some of their importance. Interviews with several hundred women of all types certainly gave the impression that married women over the age of 35 or thereabouts were generally better balanced and less "nervy" than single women of the same age. Although they had more absences than single women (Table VI), they were, on the average, away for shorter periods (Table IX), mainly because they were able or willing to resume work more speedily after being absent through gastric trouble, functional nervous ailments, or "fatigue" (Table X). These are the ailments most frequently associated with worry, anxiety and overwork.

The older married women, perhaps partly as the result of their experience with tradesmen and other callers at the home, seemed better able to "stand up" to factory supervisors and managers, and were less affected by incidents which aroused their displeasure. This attitude helped to lessen the strain of work, and also secured for these women a few additional amenities, such as permission to brew a cup of tea or to use a box as a seat.

Fourthly, the higher sickness absence among the younger married women may have been due in part to undisclosed pregnancies. Some pregnant women preferred to keep on working as long as possible, and tried not to disclose the real cause of their absence. Thus the medical certificates for the first few months of pregnancy might state that the woman was "sick," "unable to work" or "suffering from gastric trouble." In other words the symptoms and not the cause of the illness were given. These absences were included in the sickness records kept by the firm and also in the figures collected in this inquiry. Known cases of pregnancy, however, were excluded from the records.

Fifthly, those connected with the factory welfare and medical services said that young single women and young married women without children and home duties showed, on the whole, less sense of responsibility than older women, and were less eager to come to work when feeling "off colour." Casual absence of this type would not, of course, appear in the sickness records, but it is probable that the liability of younger women to illness was increased by their more frequent visits to cinemas, dances, and the like. The comparative indifference to work and to the war effort, shown by some of the younger women, would also tend to make them less eager to resume work after an illness.

(iii) *Sickness absence and length of service*

The results in this section show that women who had been employed on munition work since the first year of the war had fewer but longer absences than those recruited later. On the surface, this might suggest that continued exposure to war-time conditions of work had a favourable effect on the number of absences but an unfavourable effect on their length. There were, however, a number of other factors which must be taken into account.

In the first place, women with two to three years of service entered the factories prior to July, 1940. They accordingly worked through the emergency period in 1940, when hours of work in most factories were from 70 to 75 per week. Thus they not only had the longest experience of war work, but they also worked through the worst period of the war; and it would not be surprising if they showed signs of strain or ill-health.

Women with one to two years of service entered the factories between July, 1940, and July, 1941. Thus they included some who were exposed to the reduced but still severe industrial strains of the latter part of 1940. The remainder included some of the first conscripts of 1941.

Women with less than one year of service were recruited for munition work in the year ending June, 1942. They consisted of the last of the women who were normally employed on industrial work, together with an increasing number drawn from the non-industrial population.

Secondly, the women who were most prone to sickness had been discharged as unfit for factory work. Since this weeding-out process began in the first year of employment and was continued throughout the following years, the longest service group were, from the standpoint of health, the most highly selected. The weaklings had been removed and only the fittest survived. Hence, other things being equal, they should have the least amount of sickness. This was found to be so for the total number of absences, but not for the total number of days lost, and still less for the average length of the individual absences. Thus the trend of the results in Table XII becomes increasingly significant. Further, it is reasonable to assume that, if war-time conditions of employment had no effect on health, the percentage of women discharged as medically unfit would decrease as the length of service increased. Any tendency in the opposite direction, such as that recorded in Table XIV, is accordingly important, especially when it is remembered that the long service women were, on the average, younger and of better physique than those recruited later.

Thirdly, the average age of the women recruited for industrial work has risen steadily in each successive year of the war. If older women are more prone than younger women to sickness, then this factor would tend to increase the amount of sickness absence in the shorter service groups.

It seems fairly certain, therefore, that the figures in Table XII fail to show the full effect of war-time conditions of work on the health of women in industry, since they take no account of the women discharged because of ill-health, the higher average age of the later recruits, and the progressive relaxation in the physical standards of those accepted for employment. When due allowance is

made for the probable effect of these factors on the sickness rate, there can be little doubt that the amount and length of sickness absence increased with each additional year of service. The increase was particularly noticeable among women who had been employed since the first year of the war, and was most marked in the ailments associated with nervous and general debility.

(iv) *General*

The preceding remarks refer to some of the main tendencies disclosed by this investigation, and do not pretend to give a complete picture of the causes of sickness absence in industry. Thus it is fairly certain that the frequency, amount and nature of sickness absence are related to factors such as the number and distribution of the daily and weekly hours of work; the frequency of shift changes; the type of work; the ventilation of the workroom; transport difficulties; the kind and amount of recreation; food, rest and sleep; the factory medical and welfare services and the general mode of life.

IV—CONCLUSIONS

1. During the last six months of 1942, the sickness absence among 20,000 women workers amounted to 7.8 per cent. of the total number of days in the period. Diseases of the respiratory and digestive groups, and functional nervous disorders, accounted for most of this absence. Absences due to "fatigue" were also fairly numerous and prolonged. During this period, there was a fairly close resemblance between the incidence of functional nervous disorders and diseases of the digestive system.

2. The percentage of women who had no sickness absence in the period of six months was 45.3; the percentage who had absences of more than 28 days was 14.4. The most frequent causes of long absences were diseases of the respiratory and digestive groups and those diagnosed as "nervous debility" and "general debility."

3. The amount of sickness absence of married women exceeded that of single women by 65 per cent.; the excess being most marked in diseases of the generative, locomotory and circulatory groups, in functional nervous disorders (including "fatigue") and in absences due to accidents. The proportion discharged for reasons of ill-health was also much higher among married women.

4. Sickness absence varied with age, the number of days lost through sickness being highest in the age group 30 to 50. In each age group, married women had more sickness absence than single women, the increase being particularly noticeable in married women under 25.

5. Women in the longest service group (2 to 3 years) had fewer but longer absences than those recruited later. The proportion discharged for reasons of ill-health was also higher.

6. The amount of sickness absence varied according to the type and conditions of work. It was higher for production workers than for examiners, and was least for clerical workers. There was some evidence that sickness absence among women on day work was less than for women on shift systems.

In general, the results obtained in this investigation illustrate the importance of accurate and complete records of sickness absence, and the value of such records as an index of industrial health. They may also serve to direct attention to the loss in output due to sickness, and may stimulate industry to inquire more closely into the causes of ill-health. Finally, they should help to emphasise the importance of sickness records as a necessary foundation for any sound system of dealing with industrial diseases.