

DON'T DISCLOSE IDENTITIES

From the beginning of these studies, the identities of the persons under study have been kept confidential. We look to you to carry on this trust. Please guard the privacy of the persons involved by substituting fictitious names, or code symbols for real names.

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CONCLUSIONS DRAWN FROM
SUBSTANCE ANALYSIS

210 pp

1929

CONCLUSIONS DRAWN FROM SUBSTANCE ANALYSIS
BY SUBJECTS - 1929

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THE GROWTH OF ANALYZATION

The analyzation of interviews has undergone a rapid and continuous change from its start about a year ago. This evolution has been of a step by step nature, in that each step has suggested the next, leading to many improvements in the methods of securing information from the employee's interviews.

ANALYZATION TO THE PRESENT TIME

In the beginning the interviews were read and the number of complaints the employees' made about various plant conditions was tabulated, but when an attempt was made to use these tabulations for investigations it was found necessary in many cases to refer back to the interview for a more detailed statement of what the employee said. It was also realized that the tabulations gave only the unfavorable comments about the conditions and that the favorable comments were needed to present a true picture of the situation. The consideration of these two points gave impetus to the idea that an analysis of all employee comments would give the detailed information necessary for proper study of any condition. However, it was first necessary to formulate some method of analyzation.

From the tabulation of the conditions complained about by the employees in the interviews a list of seventy-three subjects was compiled. A revision of this list, by combining the related subjects, reduced the number of subjects to thirty-two. This revised list seemed to cover practically every phase of the employees' industrial situation about which he commented. However, to test out this assumption, one thousand interviews from the Operating Branch

were analyzed using these subjects as a basis. During the analyzation no effort was made to force the employees' comments into any theoretical channels; "What the employee said" being the basis which governed the classification. Some minor changes were found necessary, but in general the original list proved adequate. The test also showed that the different analyzers had divergent views about the meaning of many of the subjects. To help eliminate this condition, and the possibility of over-lapping among the subjects, a detailed definition was formulated for each subject. The accidental analyzing of different copies of the same interview by two analyzers a short time afterwards served to prove that the careful defining of the subjects had eliminated most of the diversity of opinion among the analyzers. A careful check of the different analyzations showed that they were practically the same. This also indicated that it would be possible for a group of analyzers to analyze a large number of interviews and get results that would be, for all practical purposes, identical with an individual analyzation.

The analyzation of the 10,300 interviews taken from the Operating Branch in 1929 have added only six more subjects to the original list of thirty-two and the following list of thirty-eight is the one in use at the present time. The subject of supervision is one of such vital importance that it is treated separately and not included in the list of subjects.

Absence	Fatigue	Light
Advancement	Floors	Lockers
Aisles	Furniture & Fixtures	Material
Bogey	Hospital	Monotony
Club Activities	Hours	Noise
Dirt	Interest	Payment

Placement	Temperature	Ventilation
Restaurant	Thrift	Washroom
Safety & Health	Tools & Machines	Welfare
Sanitation	Transportation	Working Space
Smoke & Fumes	Vacation	

The following subjects have been added to the original list:

Cheating	Steady Work	Home Responsibilities
General	Social Contact	Interviewing Program

With a definite list of subjects established, the process was further enlarged by having the analyzer bracket and mark the subjects on the typed interview and four copies of these comments were typed on 3" x 5" slips. These 3" x 5" slips are filed by branch, subject and department. The comments on supervision are filed in the Analyzing Department and used only for supervisory training, but copies of the other subjects are sent to the Investigation Organization for their respective branches.

This gives a brief picture of the evolution that has taken place in the analyzation of interviews up to the present time.

ANALYZATION AT THE PRESENT TIME

The principle work of the Analyzation Department at the present time is divided into two distinct parts; first, an endeavor to determine "What employees talk about", second "What do employees say" about the subjects on which they comment, these are called respectively subject analysis, and substance analysis. All comments are considered from the angle of items which may affect the employee's industrial situation.

1. SUBJECT ANALYSIS.

The making of the subject analysis consists of finding out what subjects the employees use in talking about their industrial situation and the classification of their comments to the proper subjects.

The analyzer reads the typed interview through as a unit, attempting to get a picture of the employee's viewpoint. He then goes through the interview reducing the various comments to their smallest component thoughts and classifying these as to subject matter. In making the classifications, the analyzer only makes use of "what the employee says," no attempt being made at the present time to find the motive back of the employee's statement. Many times a comment contains more than one integral thought and in order not to destroy the tenor of the comment it is classified to more than one subject.

After the interview has been analyzed, the bracketed comments are typed on 3" x 5" slips which gives flexibility in grouping for study and filing. When these slips are filed there is accumulated under each subject a vast amount of data on what the employees say about that particular subject. However, this material is composed of such a wide variety of thoughts that it is nearly impossible to get a definite picture until it has been consolidated. This condition created the necessity of a further analysis, which is known as a substance analysis.

2. SUBSTANCE ANALYSIS.

The substance analysis is made by a study of all the comments

classified to the subject, the basis being "what the employee says about the subject." All the comments filed under the subject are studied from this viewpoint.

The comments are first divided into two groups, favorable and unfavorable. In making this division only the subject being studied is considered. Many times a comment may not be unfavorable to the Company, but if it is unfavorable to the subject being studied it is placed in that group. When the comments are grouped as to favorable and unfavorable they are then separated into the different component thoughts about the subject. An effort is made in classifying these thoughts to divide them into their smallest integral parts. However, in some instances this is impossible and the classification must be fairly broad. After this classification has been completed the comments are tabulated as to favorable or unfavorable and the number of men and women given for each classification. Many subjects are divided into definite sub-divisions, and when this occurs each sub-division is treated separately and a consolidated tabulation made for the subject. Each sub-division is a complete unit in itself in this completed analysis.

The completed substance analysis gives a detailed description of the ideas the employees have about the subject analyzed. The division of men and women gives more significance to many of the ideas expressed and indicates that there is a vital difference between the sexes on some subjects. To make the picture more complete, a typical list of comments illustrating how the employees

express themselves about each classification is compiled and forms one part of each substance analysis.

3. FACTS INDICATED BY THE SUBJECT AND
SUBSTANCE ANALYSIS.

The completion of the subject and substance analysis for 1929 gives indications that the following conclusions may be drawn:

1. That the list of subjects used for subject analysis covers practically every phase of the employee's industrial situation about which they talk.
2. That it will be possible to formulate a fairly definite list of thoughts which the employees may express on any subject.

The analyzation of the 10,300 interviews in 1929 only added six subjects to the original list of thirty-two. A check of these six subjects reveals that three of these, "General", "Social Contact" and "Home Responsibilities" deal primarily with conditions that are not purely industrial, and although they affect the industrial situation in many instances, their influence will come primarily from outside the plant. There has as yet been no special study made of these subjects to see just what the correlation is between them and conditions within the plant, for the analysis of "Social Contact" and "Home Conditions", which have been partially completed, are being held for future study. It is believed, that with more information from the other subjects, it will be possible to formulate a basis for comparison of the effects of outside and inside influences on the life of the industrial worker.

The substance analysis have indicated that it will be possible, with some additional information, to establish a fairly accurate list of thoughts which the employees express about any one of the subjects. In making a substance analysis it was possible to pick at random about 500 comments from a group of 2,000 and get a list of thoughts that would, with a few exceptions, represent all the thoughts expressed by the full 2,000 comments. Another proof of this possibility was found when the substance analysis were brought up to date for 1929. In some instances there were as high as 1,000 to 1,500 comments added to the analysis, yet in only a few cases were there more than a few thoughts added to the previous classification, and many of the thoughts added were distinctly individual and the only one of its kind in the analysis; thus, indicating that it will be possible to arrive at a fairly accurate list in the near future.

The distinguishing and gratifying thing about the advancement of analyzation so far has been the fact that each new step has suggested new studies. Although, the substance analysis have just been completed, they have shown the possibilities for any number of new studies.

4. POSSIBILITIES FOR NEW ANALYSIS AND STUDIES.

So far in the analyzation of interviews the main objective has been to draw from the comments the objective expressions of the employees. However, an analysis which would show the subjective significance as well as the objective, would seem to offer greater ultimate values. Methods for this type of analysis can be dimly visualized, but at this time have taken no definite shape. In

making the subject and substance analysis, any possibility of distorting or theorizing on "What the employee said" was carefully avoided. "What the employee said" was taken as a fact. However, at this time comes the realization that "What the employee says" is not the important thing, but "why he says it." This realization has shown the necessity for several new studies.

Since the methods for these future analysis are as yet not clearly visualized, it will only be possible to mention a few which are contemplated. One type of analysis might be made to show the correlations between subjects. For instance, from the analysis made, there appears to be a correlation between the subjects of "Dirt" and "Transportation". If this is a fact, then why should not that correlation also extend to "washrooms" and lockers. There seem to be definite possibilities in this type of analysis.

Two other types of analysis seem to be of immediate importance. First, one which will study the various subjects in terms of employee groups; such as sex, age, service, nationality, payment, etc. Second, one which will give the total expression of the individuals and relate these to their total back ground. Analysis of these types would, no doubt, prove beneficial to supervisors in dealing with individuals.

It may be said in conclusion that there is a vast amount of information contained in the employee interviews that has as yet not been touched. It is hoped that the rapid improvement in the methods of analyzation will make it possible to secure this information for the use of management in the near future.

EH

September 15, 1930.

ROUTING FOR ANALYZATION OF
EMPLOYEES' INTERVIEWS

1. Department 6088-4 will receive the original typed bond copy of the interview from Department 6088-1, which will be filed temporarily in chronological order.

- 1.1 A convenient quantity of the interviews (approximately 15) shall then be bound in a plain manila folder, numbered serially on the outside of the folder, and retained ready for analyzation.

2. The analyzer will read the interview through carefully and endeavor to obtain a picture of the mental attitude of person making the comments.

- 2.1 He will then break the comments down into sentences or thoughts on various subjects, keeping in mind such subjects as are listed below, endeavoring to subdivide these to the finest integral thought practicable. (See attached list)

The analyzer will bracket the sentence to be shown under the subject heading which he will note in the margin. Where two or more subjects are covered in the same comment and the trend of thought would be altered by reducing it farther, all subject headings covered shall be indicated. Immediately under the subjects the analyzer will show the distribution, 1, 2, or 0, as required. (See Paragraph 2.55.)

In cases where it is necessary to split up or combine comments so as to make it difficult for the typist to understand what is wanted, the analyzer will either write an explanatory note, or dictate the interview. Where the subject matter is of such length as to make it impractical to type on the 3x5 slips, the analyzer will write a summary embodying all the important details which are necessary to get a complete picture of the subject commented on. This will be inserted in the interview and marked as indicated in Paragraph 2.1.

- 2.2 All comments covering Dirt, Fatigue, Floor, Light, Noise, Safety and Health, Sanitation, Smoke and Fumes, Temperature, Ventilation, and Washroom will be sent to the Technical Branch, Dept. 6723, and all other comments except those on supervision will be forwarded to the Investigating Organization of the branch being interviewed. There will be exceptions to this rule, which will be covered in Paragraph 2.55.

- 2.3 When the analysis of an interview has been completed a slip of paper shall be attached to the interview, showing the department number, building location, serial number, date of interview, sex, day or night operator, and the initials of the analyzer. This information will be placed by the typist in the upper left hand corner space of the form. On Supervision comments: In this space she will place the code number shown at the head of the interview. The analyzer shall keep a record of the serial number of the folder turned over to the typing organization and the date as a check that all interviews are returned.
- 2.4 When the typed form is returned by the typist the analyzer shall check carefully to see that all information is properly classified and placed. The original interview shall then be returned to file, where it will be filed by the serial number of the interview, and the accompanying slip destroyed.
- 2.5 The various copies shall be routed as follows:
- 2.51 The white copy retained in Department 6088-4 filed as follows:
- Comments on Plant Conditions filed by building location, and subject as shown in Paragraph 2.1.
- Other comments shall be filed by department number and Subject.
- 2.52 The yellow copy retained by Department 6088-4 filed by Branch and Subject regardless of department of location.
- 2.53 The salmon copy covering Plant Conditions shall be filed by building location and Subject and held until a sufficient number have accumulated to warrant study, when they will be forwarded to Dept. 6723, except as shown by distribution code covered in Paragraph 2.55.
- 2.54 The green copy covering all subjects shall be filed by department number and Subject and held until a sufficient number have accumulated to warrant study, when they will be sent to the representative appointed by the branch being interviewed, except as shown by distribution code covered in Paragraph 2.55.
- 2.55 When a comment is to be forwarded to one organization only this shall be indicated by the proper numeral, that is "1" will indicate that the comment goes only to the

Technical Branch for investigation; "1" "2" means that a copy will go to both the Technical Branch and the investigating organization of the branch in which the interview was taken; "2" means that the comment will go only to the Branch being interviewed; "0" means that the comment will be retained only in the analyzing file and all other copies shall be destroyed.

3. The typist will place the information shown on the slip attached to the interview in the upper left hand corner space of the form, except when typing comments on Supervision, in which case she will place the code number which is shown at the top of the interview in the upper left corner space, the date of the interview, and the analyzer's initials.

In the lower left corner space she will type the Subject as shown in the margin, and the routing. Where two or more subjects are shown a separate set-up shall be typed for each and designated by an asterisk, for instance a comment covering Light, Ventilation and Temperature would be classified to all three and typed three times. On the first typing an asterisk will be placed in front of 'Light', indicating that this particular slip is filed under that subject. On the second typing the asterisk will be placed in front of 'Ventilation', etc.

She will then type the associated comment in the large space. A new set-up shall be made for comments on Supervision as only a white and yellow copy are required.

KH

SUBSTANCE ANALYSIS OF SUBJECTS
COVERED BY EMPLOYEE COMMENTS

For the purpose of analyzing employee interviews it was found necessary to formulate fairly explicit and sometimes arbitrary definitions for the various subjects under which employee comments could be classified.

The subjects selected, with their definitions, are as follows:

GENERAL.

Comments on the employees industrial situation which seem of value or interest, but do not align themselves with any of the other listed subjects; such as rest rooms, smoking privilege, gate watchmen, and appearance of grounds.

ABSENCE.

Non-attendance either voluntary or involuntary and its treatment according to the Company policy, except comments on sick benefits; for jury service, court attendance, personal reasons, military service, and sickness, holidays personal leave of absence.

ADVANCEMENT.

Any change in the employees status with the Company in regard to position. Expressed by employee as, promotion, better job, demotion, etc.

AISLES.

Standard space reserved for traffic through or between rooms, includes stairways and courtways.

BOGEY.

The system of measuring the efficiency of individuals.
(Except Piece work.)

CLUB ACTIVITIES.

All functions under the control of the Hawthorne Club.

EH

DIRT.

Anything classed by the employee as such for all locations except washrooms, lockers, restaurant, and hospital, which are covered separately; example, dust, oil, grease, etc.

FATIGUE.

Weariness from physical or mental exertion. Keywords are heavy, hard, easy, nervous, standing, sitting, lifting, posture, tired, strain, etc.

FLOOR.

The structure on which the employee stands or walks. (Includes platforms.)

FURNITURE & FIXTURES.

Necessary accessories which affect the personnel but affect production only indirectly with the exception of light, lockers, and toilet facilities which are covered separately for example, benches, stools, trucks, pans, drinking fountains, elevators, desks, chairs, clocks, etc.

HOSPITAL.

The unit for all medical treatment or examination. Comments about doctors, nurses, cold treatment, etc.

HOURS.

Time spent on the job for which the employee is paid; such as lates, overtime, Sunday, rest period, and night.

INTEREST.

Expressed as such by employee.

INTERVIEWING PROGRAM.

Comments on Employee Interviews and Supervisory Training, either in regard to method or effect.

EH

LIGHT.

All degrees of illumination from either natural or artificial sources and its effect, such as, shadows, glare, shades, darkness.

LOCKERS.

Any compartment or receptacle for containing and protecting personal property. (Includes comments on space around them.)

MATERIAL.

Raw stock or parts entering into the unit of production.

MONOTONY.

Comments on variety or change. Repetitive operation.

NOISE.

Sound of any kind or lack of sound which may be disturbing or pleasing to an employee.

PAYMENT.

Financial remuneration for work. Comments on rates, piece work, overtime, weekly rate, etc.

PLACEMENT.

The allocating of employees to jobs and then shifting between jobs. Comments expressing like or dislike, satisfaction or otherwise.

RESTAURANT.

Facilities provided by the Company for selling food to its employees. Comparisons with outside food sources.

SAFETY & HEALTH.

Any condition which affects the body or health; such as, callouses, blisters, soreness, and strains.

SANITATION.

Any condition which holds a possibility for the transmission of disease. For all locations except washrooms, hospital and restaurant, such as spitting, vermin, etc.

EH

SMOKE & FUMES.

Any vapor or odor visible or invisible.

STEADY WORK.

Comments on lay-off or liking for constant employment.

SOCIAL CONTACT.

Comments on reactions to, or the effect of personal contact with other people, with the exception of family contacts.

TEMPERATURE.

Degree of heat or cold in particular locations and its effect.

THRIFT.

Any provision made by the Company which enables its employees to manage save or invest money.

TOOLS & MACHINES.

All implements used in producing a unit of output; such as, hammer, screw driver, punch press, winding machine, etc.

TRANSPORTATION.

All means of traveling between residence and working location.

VACATION.

All comments about vacation.

VENTILATION.

All changes of air in a room and their effect. Caused by drafts, fans, opening of doors and windows, etc.

WASHROOM.

All space provided with toilet facilities.

EH

WELFARE.

All functions administered by the Industrial and Public Relation Branches, except Interviewing Program, Hospital, Safety and Health and Restaurant.

WORKING SPACE.

All space except standard space reserved for traffic through or between rooms, except locker space, washrooms, hospital and Restaurant.

SUPERVISION.

All comments in regard to supervisors or reaction to supervision.

September 12, 1930.

ROUTINE FOR MAKING SUBSTANCE ANALYSIS
OF SUBJECTS COVERED IN EMPLOYEE COMMENTS
OBTAINED FROM 1929 EMPLOYEE INTERVIEWS

1. Department 6088-4 shall make a Substance Analysis of each subject as may be required. The purpose of this Analysis is to extract and catalog the expressed thoughts on any given subject as shown by the comments.
2. The Analyzer shall read each comment through and determine whether the comment shall be classified as favorable or unfavorable, bearing in mind that this is contingent upon the relation of the comment to the subject itself and not necessarily to the general tone of the comment.
 - 2.1 A work sheet shall be made up, separated between favorable and unfavorable, each divided, "men" and "women." A separate classification shall be originated for the various thoughts as they are gleaned from the comments and shall be numbered from 1 up. As each comment is read, analyzed and classified, the proper classification and sex shall be credited accordingly so that a cumulative count may be kept of the number of comments received for each particular thought.
 - 2.2 In case the subject cannot be broken down into natural divisions, (See Vacation Analysis as an example), the favorable comments shall be marked with a "+" sign and the unfavorable with a "-" sign to the right of typing in the identification space of the form, followed by the Arabic numeral which has been assigned to the classification containing the same integral thought. In case the comment contains more than one component thought, the corresponding numbers shall be placed in the space designated above with a positive or negative sign preceding each number to denote whether favorable or unfavorable respectively.
 - 2.3 In case the main subject is broken down into sub-classifications which is pertinent to some subjects, (See Thrift or Hours for example) the alphabetical letter "A" shall precede the positive or negative sign indicating the first sub-division, "B" the second, etc. For example A+B indicates the third component thought under favorable comments included in "A" or the first sub-classification.
 - 2.4 After all comments have been analyzed, posted to work

sheets and marked up as outlined in Paragraphs 2.1, 2.2 and 2.3, the quantity of credits for each comment shall be added, separated by men and women. Subjects which are not broken down into sub-division, such as outlined in Paragraph 2.2 shall be arranged as shown in Form "A" attached. In case the subject analyzed is divided into several sub-divisions it shall be arranged as shown on Forms "B" and "C", Form "B" being the summary sheet of the various sub-divisions and Form "C" the substance analysis of each sub-classification.

2.5 After arranging the analysis in proper form, it shall be turned over to Department 6088-5 for typing one bond and four tissue copies.

3. In filing the comments after analyzation, the Favorable shall precede the unfavorable in sequence according to the assigned comment number. "Men" comments shall precede "Women" comments in each numerical group. When the comment falls under more than one number assigned to it, the comment shall be filed by the upper number.

SV

Date _____

Form "A"

SUBSTANCE ANALYSIS OF COMMENTS ON
TAKEN FROM OPERATING BRANCH (1929)
EMPLOYEE INTERVIEWS

(Define Subject Analyzed)

Interviews Analyzed	_____	Men	_____	Women	_____
Total Comments	_____	Men	_____	Women	_____
Total Favorable Comments	_____	Men	_____	Women	_____
Total Unfavorable "	_____	Men	_____	Women	_____

Favorable Comments

Men

Women

1. Component thoughts
2. " "
3. " "

Unfavorable Comments

Men

Women

1. Component thoughts
2. " "
3. " "

Date _____

Form "B"

SUBSTANCE ANALYSIS OF COMMENTS ON -----
TAKEN FROM OPERATING BRANCH (1989)
EMPLOYEE INTERVIEWS

(Define Subject Analyzed.)

1. Interviews Analyzed	_____	Men	_____	Women	_____
2. Total Comments	_____	Men	_____	Women	_____
3. Total Favorable Comments	_____	Men	_____	Women	_____
4. Total Unfavorable "	_____	Men	_____	Women	_____

	<u>Favorable</u>		<u>Unfavorable</u>		<u>Total</u>	
	<u>Men</u>	<u>Women</u>	<u>Men</u>	<u>Women</u>	<u>Men</u>	<u>Women</u>
A. Sub-Classification	_____	_____	_____	_____	_____	_____
B. " "	_____	_____	_____	_____	_____	_____
C. " "	_____	_____	_____	_____	_____	_____

SV

Date _____.

Form "G"

(To be used for substance analysis of sub-classification)

MAIN SUBJECT (A) Sub-Classification

Interviews Analyzed	_____	Men	_____	Women	_____
Total Comments	_____	Men	_____	Women	_____
Total Favorable Comments	_____	Men	_____	Women	_____
Total Unfavorable "	_____	Men	_____	Women	_____

Favorable Comments

Men

Women

1. Component thoughts
2. " "
3. " "

Unfavorable Comments

Men

Women

1. Component thoughts
2. " "
3. " "

BY

September 16, 1939.

INSTRUCTIONS FOR MAKING A TABULATION OF
COMMENTS RECEIVED BY DEPARTMENT OR BUILDING

1. Department 6000-4 shall make a tabulation of employee comments by Departments or Buildings as required. The purpose of this tabulation is to show the origin and distribution of all comments as outlined in the Substance Analysis by Organizations or Building Locations.
 - 1.1 The following subjects shall be tabulated by Department numbers: Absence, Advancement, Pay, Fatigue, Furniture and Fixtures, General, Hours, Interest, Material, Sanitation, Payment, Placement, Safety and Health, Steady Work, Social Contact, Thrift, Tools and Machines, Vacation and Welfare.
 - 1.2 The following subjects shall be tabulated by locations: Air, Dirt, Floor, Light, Lockers, Noise, Restaurant, Sanitation, Smoke, Temperature, Ventilation, Washroom, and Working Space.
 - 1.3 The subjects of Club, Hospital, and Transportation do not require a tabulation by Departments or Buildings due to the abstract nature of these subjects.
2. All comments, favorable and unfavorable, listed in the Substance Analysis, including the comment numbers and the quantity of comments received, men and women, and the grand totals thereof, shall be listed in the same general arrangement on a ruled work sheet similar to form attached.
3. When tabulations are to be made by department numbers each classification of the comments shall be sorted by department numbers, "men" and "women". A count shall be made of the total "men" and "women" comments by Department numbers and the result posted on the work sheet. A separate column, divided by men and women, shall be originated for each department from which comments were received. The Department numbers shall appear at the top of the column and shall be listed in numerical sequence across the sheet and shall progress from left to right.

When tabulations are to be made by building locations each classification of the comments shall be sorted by floors and buildings, "men" and "women". A count shall be made of the total "men" and "women" comments by floors and building numbers and the result posted on the work sheet. A separate column divided by

men and women shall be originated for each building by floors. The Building and Floor numbers shall be listed in numerical sequence across the sheet and shall progress from left to right.

3.1 The total number of men and women interviewed in the various Departments or Buildings shall be posted immediately under the Department or Building number at the top of the work sheet. The title "Number of Men Interviewed" shall be placed under the title "Department Numbers" or "Building Numbers" at the left hand margin, and immediately underneath this, "Number of Women Interviewed" shall be placed. See sample form for further details.

3.2 After the results from all comments, favorable and unfavorable, have been posted as outlined in Paragraph 3, they shall be added by Departments or Buildings, men and women separately, and the result posted at the bottom of each column.

3.21 The total of men comments from all Departments or Buildings should equal the total men comments shown at the bottom of the first column. The same procedure should be applied to the women comments.

Bogey



UNIVERSITY OF WISCONSIN - MILWAUKEE

August 22, 1930.

SUMMARY OF CONCLUSIONS
DRAWN FROM A STUDY OF 2133 COMMENTS ON BOGEY
TAKEN FROM 10,300 OPERATING BRANCH (1929) EMPLOYEES' INTERVIEWS

A study of the substance analysis on Bogey indicates that this subject is one for which a large number of operators have expressed a definite like or dislike. The fact that this subject is naturally associated with their pay and also exposes their relative efficiency, possibly accounts for the volume of comments received.

In order to illustrate this and other interesting facts, the figures at the head of the substance analysis on this subject have been translated into percentages as follows:

20%	of all operators, male and female, commented on bogey
35%	" " comments received commented favorably on bogey
65%	" " " " " unfavorably on bogey

8.4% of all male operators commented on bogey
27.5% of male comments received were favorable
72.5% " " " " " unfavorable

44% of all female operators commented on bogey
38% of female comments received were favorable
62% " " " " " unfavorable

It is interesting to note that this subject is of more interest to the female operators than the male; also, that this subject is decidedly unfavorable among both sexes.

A careful resume of the unfavorable comments as listed in the analysis indicates the dislikes as naturally dividing themselves into four general classes, i.e. (1) the system itself, (2) the established bogey, (3) supervision and (4) miscellaneous.

Listed below is a distribution of the unfavorable comments
into these classes:

<u>Bogey System</u>			<u>Amt. Established as Bogey</u>			<u>Supervision</u>			<u>Miscellaneous</u>		
<u>Comment</u> <u>No.</u>	<u>Male</u>	<u>Fem.</u>	<u>Comment</u> <u>No.</u>	<u>Male</u>	<u>Fem.</u>	<u>Comment</u> <u>No.</u>	<u>Male</u>	<u>Fem.</u>	<u>Comment</u> <u>No.</u>	<u>Male</u>	<u>Fem.</u>
1.	7	0	2.	1	1	6.	0	2	26.	6	24
5.	4	23	3.	22	20	7.	13	74	30.	9	37
14.	10	14	4.	4	51	8.	10	4	34.	6	5
17.	11	10	11.	62	125	9.	31	83	37.	1	0
19.	0	19	12.	1	4	10.	22	36	48.	0	1
20.	7	5	16.	12	43	13.	24	51	66.	0	1
28.	8	14	18.	13	5	15.	6	0	73.	0	1
31.	9	15	21.	5	44	22.	4	1			
33.	13	30	24.	5	50	23.	2	1			
36.	7	4	41.	5	8	25.	4	4			
38.	4	9	45.	3	11	27.	4	1			
42.	0	30	49.	0	9	29.	7	7			
43.	1	0	58.	9	44	32.	5	14			
44.	1	0	70.	1	5	46.	0	4			
53.	1	0	71.	1	0	47.	3	5			
56.	3	2	72.	0	1	50.	0	3			
60.	1	0				51.	1	0			
61.	1	0				52.	1	2			
62.	3	0				54.	3	1			
						55.	1	0			
						57.	2	2			
						59.	1	0			
						64.	1	4			
						65.	0	1			
						68.	1	5			
						69.	2	1			
<u>91</u>	<u>175</u>		<u>144</u>	<u>421</u>		<u>148</u>	<u>306</u>		<u>22</u>	<u>69</u>	

This arrangement points out that the two chief sources of dissatisfaction are, first, the bogey quantity itself and second, reasons which can be attributed directly to the supervision. Taking

first the above comments regarding the established bogey figure as our subject for further analysis, we find that practically all of these complain about the bogey figure being too high and recite the unfavorable results of this high bogey. The establishment of a fair bogey on a job is, no doubt, a very difficult problem, and our comparative newness in dealing with this question is probably one of the reasons why we have not been able to decide just what is a fair bogey and what some of the factors are which we must consider in establishing a fair bogey.

The generally accepted definition of bogey is - a standard of measure indicating perfection. This raises the question: What amount constitutes perfection? We shall not attempt to define perfection as this term is relative and the ever-changing factors in the various organizations bearing on this subject could not be correlated into one definition. From the operator's point of view, ~~however~~, it is apparent that the bogey established should be within reach, provided a diligent effort is put forth, insofar as is within his power and within the regularly constituted working hours. The establishment of a fair bogey figure is one of the potent factors governing the success or failure of any bogey scheme, and judging from the large number of unfavorable comments received in this connection, we have not come to an agreement on this point.

The next group of unfavorable comments are those which may be classed as resulting from supervision. Scanning the comment

numbers appearing under this subject and associating them with the comments in the analysis, we find many conditions which are easily corrected, but which are, nevertheless, a point of irritation to the operators. We shall not attempt to define a supervisor's job here, but some of the comments indicate that some of our line supervisors are lax in their job or they have not been properly instructed or "sold" on the bogey scheme. The complaints listed in the comments under the heading of supervision are self-explanatory and do not require further discussion.

Judging from the comments, there is a difference of opinion among supervisors as to whether operators should be told what the bogey is and just how they measure up to the standard. In answer to this, we might cite a parallel--imagine yourself playing golf, not knowing what "par" is on the various holes or the course itself. You probably would get some "kick" out of driving the ball around the course, but trying to beat "par" (bogey) is where the real enjoyment is found. So it is with the job; unless the operators know the bogey and how they measure up to it, they miss most of the enjoyment incident to competitive sport or work.

The third subject of our analysis is, comments on the bogey system itself. Basically, the bogey system is an incentive scheme. It also provides the supervisors with a measure to determine those qualified for increases in pay and other interesting and valuable

data. It is also evident that the bogey system has its weaknesses as illustrated in the comments. Generally speaking, however, nothing much can be said regarding these comments except that it is felt that many of the conditions complained of will rectify themselves when we have arrived at a satisfactory conclusion to the proceeding subjects. An interesting angle in human nature is brought out in comment number 5, "Making rate causes hard feelings among other operators" and number 42, "Failure to make bogey - dissatisfied with self, worries operator, fears "bawling out," or feels boss not satisfied with her work, or fears lay-off". These indicate that women are "poor losers" and have an inherent dislike of being measured and compared to others. It is highly probable that these factors are also present, though not visibly, in some of the other unfavorable comments. Some of the other comments in this classification, such as comment number 33, "Chance for dishonesty by supervisors or employees", comment number 14, "Keeping bogey sheet difficult when on several jobs--requires lots of time", are points which will iron themselves out eventually but ^{should} must not be disregarded entirely. The remaining unfavorable comments are of a nature which are to be expected in any incentive scheme but which, by careful study, can be reduced to a more or less insignificant factor.

It is gratifying to note, however, that a goodly number of the employees have found something worth while in the bogey scheme. The general tone of their favorable comments indicates that they have

little or no difficulty in making the bogey and cite various beneficial results accruing to themselves or the job from the bogey system.

In conclusion, we may say that the bogey scheme, as in effect at the time the interviews were taken, leaves much to be desired. Apparently, no definite scheme has been followed in establishing the bogey figures and that operators have not been thoroughly sold on the bogey scheme, which possibly is a reflection from the line supervisors. This is also augmented by supervisors who are lax in the fulfillment of their duties, either intentionally or due to improper training. In order to rectify these conditions, it seems that we must first agree as to what constitutes a fair bogey and devise a guide for arriving at a fair figure. Secondly, all supervisors should be made better acquainted with and thoroughly sold on the bogey idea, especially the line supervisors and then see that every operator is also made acquainted with the purposes of the bogey and its consequent benefit to the operators. This work must be done with a great deal of painstaking detail so that it will seep down to the operators and impregnate their minds with the same ideas. Much missionary work remains to be done with the supervisors as well as the operators as it will require considerable effort to dislodge the dislikes now present and supplant them with the true facts.

 - 6088-4.
W. W. Stone



*Copy sent to Berners 6474
Nov. 27, 1930.*

July 1, 1930.

SUMMARY OF EMPLOYEE COMMENTS ON FATIGUE

The meaning of the word "fatigue" is so broad and the subject can be studied from so many different angles that it is really impossible to treat it fully in a short outline or analysis. This is the situation which confronts us in drawing any conclusions from the analysis of the employees' comments on fatigue.

Fatigue is undoubtedly an individual condition - it depends upon all the personal characteristics of the individual as well as his physical condition and mental attitude. So far, we have tried to measure objective fatigue by production curves, blood analysis and various kinds of instruments, but nothing definite has come from it. Also, there has been an attempt to study subjective fatigue, but so far, we are in a quandary because there is no basis from which to start or to use as a measure. The question at once arises of whether it is possible to consider these two as being distinctly separate. We know that an individual who is diseased physically finally becomes nervously incompetent and also vice versa. When we consider the question from this angle it seems that the two are so closely inter-related that there can be no distinct dividing line between them. In fact, we are not sure but that they are both present in any situation in equal degrees, but we are unable to detect or observe them as such.

We know that the body is so finely balanced in its physical state that any condition or situation that causes this fine balance to be broken constitutes a menace to life itself. In the gradual wearing-

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down and building-up of the body tissues, fatigue undoubtedly plays an important part. The normal amount of fatigue is taken care of by the body in its usual way, but when it comes to over-fatigue or abnormal fatigue, then the body is put under a strain to overcome this handicap. Unless the body is given the necessary assistance in overcoming and repairing the damage done by abnormal fatigue, it will soon fail and become incapacitated for further service until the necessary rest is secured.

In an effort to bring out various facts about the subject of fatigue two analyses were made. The first analysis was formulated with the idea of showing the cause and effect of fatigue as recognized by the employees. The second analysis gives "what" the employees say about the subject. The attempt to make a summary of these analyses will be primarily an attempt to discover where there is an abnormal amount of fatigue, what is the basis for it, and what the employees say about it.

In an effort to get at the reason why the employees talked about fatigue and why the work or job caused fatigue, the comments were tabulated in the following form. This tabulation is intended to give a more thorough picture of the reasons and causes of fatigue rather than the result as given in the second analysis.

This analysis also contains a number of comments which are not included in the second analysis.

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FAVORABLE COMMENTS

<u>WORK IS EASY</u>	<u>Women</u>	<u>Men</u>
The work is (Easy) (Not hard) and pay is good (Clean & light)	68	101
The job is not hard or don't have to work hard	78	107
The work is (Easy & clean (Easy for me (Easy	84	46
Work is (Easy) (Not hard) and have no lifting to do (Clean)	30	23
Work is nice, clean (light or not heavy)	49	60
	<u>309</u>	<u>337</u>

UNFAVORABLE COMMENTS

WORK IS HEAVY

The work is too heavy for me - I can't stand it much longer.	3	3
The work is heavy; too much heavy lifting	63	44
The work is too heavy for me	24	35
The work is heavy and must carry heavy material	10	6
The work is heavy and pay is low	3	8
The work is heavy, but can't kick about it, or don't mind it.	7	16
The work is heavy and rate is hard to make	9	4
	<u>119</u>	<u>116</u>

WORK IS HARD, HAVE TO WORK HARD

Work is too hard for me	38	17
Have to work hard and rate is hard to make and not enough pay	84	52
Work is hard, but they pay good	9	13
Work is hard, but I don't mind it or I am used to it	7	14
	<u>138</u>	<u>96</u>

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HOURS

REST PERIODS

	<u>Women</u>	<u>Men</u>
Like the rest period, feel rested up, don't notice it on bogey	14	7
Like the rest period, give one a chance to stand up or sit down and rest	8	3
Like the rest period, give you a chance to rest and eat something		4
Like the rest period, relieves us and don't feel so tired at night	4	3
Like the rest period, a great help to eyes on a close job	1	2
Should have a rest period to give a chance to rest up	6	5
Don't like rest period, have to work harder to make up the time	4	1
Rest period in morning breaks your speed, like it in afternoon	1	
	<u>38</u>	<u>25</u>

REGULAR WORKING HOURS

Get very tired working 8-3/4 hours, hours are very long	3	
6-1/4 hours after dinner (on nights) is too long		2
When you work hard 8-3/4 hours, it is too long		4
	<u>3</u>	<u>6</u>

NIGHT HOURS

Night hours are too long, you get tired, sleepy	5	5
" " " " " didn't get proper rest in day	5	6
" " " " " feel tired after midnight		11
" " " " " feel tired out by quitting time		3
Like working night - have worked nights so long, can't sleep of nights		1
	<u>10</u>	<u>26</u>

OVERTIME

Should not have to work overtime on Saturday and Sunday	36	2
Too hot in Summer to work overtime	10	5
After you work regular hours, you slow up and lose speed	1	3
Should not have to work overtime, you are tired enough at end of day	17	9
Working overtime is very hard on the worker physically	2	4
Don't mind working overtime 4 nights and every other Sunday	1	
	<u>67</u>	<u>23</u>

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<u>EYE STRAIN</u>	<u>Women</u>	<u>Men</u>
Reflection of lights of shiny parts and goggles hurts the eyes	2	
Night work is hard on the eyes, work is hard to see	4	
Need more or different light for this work, (tedious or close work)	16	14
Job is too much of a strain on the eyes	12	21
Colors of materials which we are working with hurts the eyes	4	
Sun shines on my work, shade does not stop it		1
Goggles hurt the eyes during hot weather		1
Overtime is a strain on the eyes		1
	<u>38</u>	<u>38</u>

SAFETY - ACCIDENTS

Speed at which we must work causes accidents	<u>2</u>
	2

POSTURE

CHAIRS

Should furnish chairs to sit on		3
Chairs we have are not comfortable, can't rest your back	5	1
Like the job because we have a chair to sit in	<u>1</u>	<u>4</u>
	6	

SITTING

Sitting down at work agrees with me	2	1
Like the job because we can sit down all day, not so tiresome	48	17
Don't like to sit all day, want to be able to move around	<u>16</u>	<u>12</u>
	66	30

SITTING OR STANDING

Like the work, because can either sit or stand	36	10
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<u>STANDING</u>	<u>Women</u>	<u>Men</u>
Don't like job because must stand all the time, feet get tired and sore	46	49
When material runs poor, must stand all day - get very tired	12	
It is too hard for me to be on my feet all day or night	5	6
Have to stand all the time, but don't bother me	10	5
	<u>73</u>	<u>60</u>

UNNATURAL POSITIONS

Machine, bench or boards we work on are not right height and must stoop or reach according to our height	3	6
Must stand on one foot all day		1
Must sit out on edge of chair feeding the machine	1	1
Must climb up and down scaffolds all day		2
Must brace yourself with one hand to do the work		1
Chair is bolted to floor too far from machine, have to lean forward		1
Have to sit straddle a post at bench and thus must lean forward		1
Must hold a tool all day long and it cramps the hand	2	1
Must reach for work or hold the arms up to get work	9	
Must bend over or keep bending all day	9	
Have to sit, so that my feet are cramped	4	
Have to sit in a cramped position all day	2	
The continual motion of the right arm is very tiresome	1	
	<u>31</u>	<u>14</u>

NERVOUS

The noise and vibration makes me nervous	3	1
Too nervous for the job	3	2
Makes me nervous because Bogey is so high		3
Work or job makes me nervous	32	10
Wearing safety glasses, makes me nervous	1	
It makes me nervous to be working so close to a machine	1	
When the machine breaks, or material is bad it makes me nervous	13	
It makes me nervous to have to hustle or work by spurts	2	
Makes me nervous to teach a new employee	1	
Working nights is a strain on my nerves	1	
Makes me nervous see girls running machines when they are half asleep	1	
Like my job because it does not make me nervous	2	
	<u>62</u>	<u>16</u>

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<u>ELEVATOR SERVICE</u>	<u>Women</u>	<u>Men</u>
Want elevator service in morning and night	21	
Must walk up four flights of stairs - all in after the climb		2
	<u>21</u>	<u>2</u>

<u>JOB INJURING HEALTH</u>		
Job is not healthy because of acids, fumes or dust		3
Job is injuring me physically, will not last long	16	12
Job is causing me to lose weight	1	2
My health is bad and I am allowed to rest at times		1
Oil on floor is ruining my feet		2
Using kicker all day makes my feet and legs very sore	4	5
Pulling hard on a lever all day hurts my side	1	
Have to push our chairs back and forth, is very hard on us		
	<u>2</u>	
	<u>24</u>	<u>25</u>

<u>VENTILATION AND HEAT</u>		
Windows should be open in summer time, too hot		1
Steampipes on ceiling cause too much heat		1
Too hot near the windows		1
Fence around machines keeps all the air from operator	1	
In winter time, the smoke from soldering is very bad	1	
Likes it in the building, the heat and ventilation are fine		
	<u>2</u>	
	<u>4</u>	<u>3</u>

<u>CLUB</u>		
You can work better because of the dancing and noon programs	1	
Feel much better when I use the Gym and Tennis Courts		1
	<u>1</u>	<u>1</u>

<u>MONOTONY</u>		
Doing the same thing over and over gets monotonous	6	9
The job is monotonous and tiresome	3	6
The job is not monotonous	3	
	<u>12</u>	<u>15</u>

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<u>INTEREST</u>	<u>Women</u>	<u>Men</u>
Job is interesting not tiresome, something different all the time	13	4
Job is interesting and not tiresome	4	3
" " " " " " ; pay is good	3	6
	<u>20</u>	<u>13</u>

<u>BOGEY</u>		
Rates are too high, very high or very hard to make	13	7
Rates have been raised and are nearly impossible to make	3	1
	<u>16</u>	<u>8</u>

<u>FLOORS</u>		
Working and standing on a cement floor is hard on the feet, feel tired out by end of day, makes feet sore	19	16
Working on concrete floor is injurious to your health, cold and damp	1	2
Metal floors are slick and hard on feet		5
Rubber mats are not placed in proper place, so as full benefit can be secured		3
Rubber mats makes it better on concrete floor		1
Block floors big improvement over concrete	6	3
Iron stands used to stand on are hard on the feet		1
	<u>26</u>	<u>31</u>

<u>GENERAL</u>	
I have never worked any place before where the employees were given so much consideration, as to comfort	<u>1</u>
	<u>1</u>

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The preceding substance analysis was formulated with the expressed purpose of giving the cause and effect of fatigue, as recognized by the employees. In this analysis, instead of picking out of the comment just what the employee said about fatigue, the whole comment was considered and used as the basis for the grouping of the comments. By following this method, the comments were grouped under the headings of hours, safety, posture, ventilation, club, interest, monotony, bogey, floors, and general; the comments not falling under these headings were classed as favorable and unfavorable.

The favorable comments (309 women and 337 men) were divided into five classes. There an effort was made to secure some reason for the work being commented on as favorable. One class claimed the work was "easy," "not hard," "clean and light" and also, included the statement that the "pay was good," giving the idea that a great many employees are basing at least part of their estimation of the fatigue of the job on the pay. Another group of comments under favorable bring out the fact that certain employees have based their decision as to whether the work is easy or not on the amount of lifting that they have to do.

In the unfavorable group there are two classes, "the work is heavy," and "the work is hard," or "have to work hard." The first class brings out the point that many employees base their opinion of the job on how heavy the work is to them. A few more merely claim the work is "hard" or "have to work hard." The question that comes up here is whether the employees mean the same thing when they say "the

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work is hard" and "have to work hard." The comments indicate that the general idea is the same for both types.

The group of comments put under the heading of hours contains comments on rest periods, regular working hours, night hours and overtime. The comments on rest periods, which are mostly favorable, show that the employees do not feel as tired at the end of the day as when there are no rest periods interposed. The employees claim that the rest periods give them: "a chance to rest up," "move around," "to eat something," "rest the eyes," and "that they can work better afterwards." The effect of rest periods can be measured to a certain extent by production curves and have been shown to have increased production from one to twenty percent. The rest period is not a cure-all for fatigue, but it can be helpful in relieving it to a certain extent. There is proof of this in our comments on rest periods, a full summary of which may be found in the substance analysis of hours. The question of regular hours and night hours are commented on by only a few employees and this number is far too small to base any conclusion on. There are too many other conditions entering into the matter of length of the hours to say that the hours are so long that they cause an abnormal amount of fatigue. The night hours are long enough, no doubt, but we only have three men claiming that they are too long, and there are only eleven men saying that the hours are so long that they feel tired out after midnight. The use of production curves might prove that shorter hours at night would be profitable but we do not have these to use, thus we can only surmise that some of these complaints may be

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the result of fatigue, while others are probably due to conditions which are not directly the result of the work or number of hours.

The question of overtime is a serious problem because of the many angles which enter into the conditions. Overtime, if used only occasionally and for short periods, may not be injurious, but if it is continued for any length of time will overtax the system to such an extent that the ordinary hours of rest will not give the body sufficient time to regain its lost energy. When this condition exists a complete rest is necessary so that the body may regain the proper balance between catabolism and anabolism.

The group of comments listed under eye strain are equally divided between men and women. These comments indicate that there may be some subjective fatigue here. Although, eye strain will show in the productive curve, yet it is possible that it is not wholly objective fatigue. There is a tendency among individuals to lay the blame for their inability to see well on the lights, rather than to a weakness of their eyes. This may account for some of the comments about the lights being a strain on the eyes. Another angle is that an employee who knows his eyes are weak will not allow himself to admit the fact. Coming back to the possibility of subjective fatigue, it is reasonable to conclude that there are some employees who are of such a temperament that any reflections, shadows, or the forced wearing of goggles or glasses will tend to make them nervous and irritable. It is possible for this condition to become a serious problem for this type of employee, and this will eventually lead to serious complications.

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It is essential that the eyes of an employee be protected by a proper lighting system, especially when very fine parts are being made or assembled. In this type of work, unless the lights are properly placed and have the right intensity the result will soon be reflected in the employee's production curve and health.

Under accidents, we find two women definitely state that "the speed at which we have to work causes accident." They claim that they must work so fast that they soon become careless and the result is an accident. Just how much the question of fatigue enters in here is doubtful. If the work is so fatiguing that they become careless, then it would probably be the result of fatigue. However, fatigue has a tendency to slow down the speed at which the operator is working and thus reduce the accident rate, if that rate is based primarily on speed. Carelessness is not always the result of fatigue and, in all probability, familiarity with the work tends to create more carelessness than any other condition.

The comments on posture, include sitting, standing, unnatural positions and how they affect the employee. The comments on sitting say that it is tiresome to sit still all day but this does not mean that the work is fatiguing. These comments point to the fact that sitting still is really a question of monotony instead of fatigue in its pure sense. The effects of standing all day long, and being in an unnatural position during working hours are different and no doubt bring about in some instances an abnormal amount of fatigue. Standing may not bother some, but to others it becomes serious. Being in an

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unnatural position throws an added strain on certain parts of the body, and thus these parts must then call upon others for a reserve supply, bringing about a general fatigued condition. With this physical fatigue, there is the added effect of having to sit this way, which is constantly being forced upon the employee bringing about a psychological effect that will gradually lead to a mental reaction against the job. The employee in this situation may not realize just when he becomes fully conscious that the job is becoming unbearable, but he will finally come to the conclusion that he cannot stay on it any longer. When this condition comes about he will no doubt lay all the blame on the physical fatigue due to the unnatural position in which he is working, but in all probability the real cause is his mental reaction to being forced to work in this position.

The group of comments, about "being too nervous for the job," or "the work making me nervous," may be the result of the work or not, but there is an inclination to believe that it is not the direct result of fatigue, but from some other condition that may be present. First, there is the possibility that the employee is of a nervous temperament and it will only take a few things such as machine trouble, poor material, or high bogey rate to put the employee under a nervous strain. Again the noise, or monotony, of the job may bring about a similar condition, and lastly there may be a home condition or supervisory situation that would produce the same results. There are, no doubt, some employees who are not fitted for certain types of work and when so placed, that they are under a physical strain all the time, will end

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up by becoming very nervous and irritable. The comments lead to the theory that nervousness on the job is partly the result of other conditions and not wholly the effects from the job alone.

The group (24 men and 25 women) complaining that the job is ruining their health takes several angles. Some of these employees have been sick or hurt and are placed on work that is too heavy or hard for them in their physical condition. This is merely a misplacement and should be remedied immediately because it may lead to serious results to the employees. The situation is different where the fumes, smoke, or acids are the cause of the physical injury. These lead to a diseased condition and many times permanent injury to the employees. A condition like this may be injurious to one employee, while it will not affect others, so why force an employee to stay on a job like this, where there is a possibility of permanent injury, when others can be found that can do the work without any serious effects. However, if the work is of such a nature that the employee must be protected then the necessary safeguards should be installed and checked continually to see that they are giving the proper protection. A number of comments are found on use of kickers and levers on machines. The employees claim that the use of these tire them out, makes their legs and arms sore. The pushing and pulling also may seriously affect the health because of the continual strain under which the employee works.

Ventilation can have a serious effect upon the employees, as impure air, fumes, smoke, etc., are not only injurious to the health,

but also bring about a groggy feeling which will affect the production. Especially in winter time does this question become bothersome, where men and women are working together doing different types of work. This situation makes a problem of how to ventilate to suit all. The fumes and smoke should be taken care of by special apparatus, but poor ventilation is a much more difficult problem. The temperature and moisture content of the air must be considered as well as the movement. All of these will vary under different climatic conditions, so that it is a changing problem at all times. Nevertheless, it is a condition that will affect the mental attitude of the employee on the job and soon create a general dissatisfied condition mentally as well as physically.

There are two comments which say that the Club programs and chance to exercise afforded by the gymnasium help to take away that tired feeling and make it possible to go back to work with an entirely different attitude toward the job. Thus indicating that there is a mental and physical reaction to the job which may be changed by certain means and ways.

There are 27 comments which particularly relate to the monotony of the job. In the substance analysis of monotony, the conclusion was drawn that monotony is the individual's reaction to the job. This reaction is influenced by all the various conditions which may react on the individual. In relating this to fatigue, it points to the fact that it is not so much physical as mental and if there is a chance for the beginning of subjective fatigue, it probably can be traced to a situation like this.

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The comments which are listed under interest, point to the fact the job or work is not monotonous. The impression is given that if the work is interesting, it is not fatiguing. However, these comments do not give any facts that indicate whether they are talking about physical or mental fatigue or both. We must accordingly assume that they are satisfied and in that case there should be no abnormal physical or mental fatigue present.

The fact that the employees use the words interest and monotonous tied up with the word "tiresome" and the phrase "doing the same thing over and over" seems to bring out the fact that they are using these two words to express opposite conditions i.e., if the job is interesting it is not monotonous and vice versa. The word "tiresome" may mean their physical reaction to the job while the phrase "doing the same thing over and over," their mental reaction. There is no way of knowing whether this is true or not but the comments when analyzed as a whole, point to this fact. It might be said that each individual has an entirely different reaction to each situation and therefore their expressions may not be used to form any definite conclusion, but if we use this viewpoint too literally then it will never be possible to reach any conclusion from employee comments.

There are several comments stating that the bogey rate is "very high," "very hard to make," or "it has been raised until it is nearly impossible to make." The possibility of physical fatigue there is not so clear as it would seem. It is doubtful if any employee will work beyond their endurance for any length of time. The real situation

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seems to be in the fact that the impossibility of making the rate will create a psychological situation which will bring about a condition of subjective fatigue. There are many other things which may enter into a situation like this such as home conditions, fear for the job, fear of supervisor, etc. These conditions will all have their effect on the resulting attitude.

The comments about the concrete floors (31 men and 26 women) are mainly on the fact that working on this kind of a floor makes the legs and feet ache and pain. There is no question but that concrete has no give to it and anyone who must stand all day on it is very tired at night. The rubber mats given the employee to stand on seem to relieve that strain, but some of these mats are not placed properly and some of the employees claim that they have to stand so that only part of the feet are on the mat, thus making the mat worthless. A number of the employees claim that the concrete floor is cold in the winter time and caused them to catch cold. No doubt, there is more of a possibility for drafts with a concrete floor and also it will not heat up as easy as the block or plain wood floor. Many favorable comments are found stating that the new block floors relieve this condition of tiredness and possibility of catching cold.

There was one comment which stated that the employee had never worked at any place before where they gave so much consideration to the comfort of the employee. This comment merely gives an indication that the employees are receiving consideration and that management is making an effort to help eliminate the conditions which cause fatigue

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as far as possible.

Before drawing any definite conclusions, the second analysis, which follows, will be briefly considered.

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July 1, 1930.

SUBSTANCE ANALYSIS OF COMMENTS ON FATIGUE
TAKEN FROM OPERATING BRANCH (1929)
EMPLOYEE INTERVIEWS

All comments on weariness from physical or mental exertion (key words are heavy, hard, easy, nervous, standing, sitting, lifting, posture, tired, strain, etc.) have been classified under this subject.

Interviews Analyzed	- 10,300	Men - 6800	Women - 3500
Total Comments	- 2,275	Men - 1011	Women - 1264
Total Favorable Comments	- 964	Men - 447	Women - 517
Total Unfavorable Comments	- 1,311	Men - 564	Women - 747

	<u>Favorable</u>	<u>Men</u>	<u>Women</u>
1. The work is easy, clean, not hard, or don't have to work hard	298	307	
2. The work is light, not heavy and don't have any heavy lifting to do	93	85	
3. The work is interesting and not tiresome	18	33	
4. Like the work because you can either stand or sit	11	36	
5. Like the work because you can sit down	15	44	
6. Prefer to stand up on the job	5	9	
7. The new floors are easier on the feet than concrete	7	5	

	<u>Unfavorable</u>	
1. The work is hard and we have to work hard	88	95
2. It tires us out trying to make the bogey, it is so high	12	18
3. The work is too hard for me	10	23
4. The work makes me very tired	13	28
5. Overtime is too hard in warm weather	6	8
6. The work is hard and my hands get sore and calloused	2	4
7. The work is hard and it makes me nervous		8
8. The work is so tedious and difficult to do	1	3
9. We have to work too hard	11	18
10. Work is too heavy for me in my present condition	6	1
11. The work is heavy	45	23
12. Must do too much heavy lifting	39	33
13. Must carry heavy work and pans	3	15
14. The work is too heavy for me	28	49
15. The work is so heavy that I will not last long at it	1	3
16. Working overtime for a long time gets on your nerves	9	7

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	<u>Unfavorable (Cont'd)</u>	<u>Men</u>	<u>Women</u>
17.	You are too tired to work overtime after the regular hours	10 ✓	16 ✓
18.	Overtime on Saturdays and Sundays is too tiresome	6 ✓	49 ✓
19.	The job makes me nervous	15	49 ✓
20.	I am too nervous for this kind of work	2	5 ✓
21.	The bogey rate is so high that it makes me nervous trying to make it		17 ✓
22.	When there is machine trouble it makes me nervous		3 ✓
23.	When the materials runs bad it makes me nervous		11 ✓
24.	Safety glasses make me tired and nervous		2 ✓
25.	Working on cement floors makes me so tired and foot sore	21	22 ✓
26.	Working on metal floors is very tiresome	11	0 ✓
27.	Climbing up several flights of stairs tires you out	2	22 ✓
28.	Standing up all the time makes you very tired	68	74 ✓
29.	It gets tiresome sitting all the time	19	21 ✓
30.	The unnatural position in which I must work makes it very tiresome	15	36 ✓
31.	The chairs we have are uncomfortable	1	4
32.	The work is injuring my health	21	21 ✓
33.	Running a kicker all day makes my foot and leg very tired	5	4 ✓
34.	The work is hard on the eyes	23	14 ✓
35.	The lights are bad and we must strain our eyes	16	13 ✓
36.	The reflection from the lights hurts the eyes	1	4 ✓
37.	The night work is a strain on the eyes		4 ✓
38.	The regular hours are so long that you get very tired	8	4 ✓
39.	The night hours are too long and can't get proper rest during the day	30	12 ✓
40.	The work becomes very tiresome	15	5 ✓

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TYPICAL COMMENTS ON FATIGUEFavorable Comments

1. "I like this job. The work is clean and easy and the pay is pretty good."
2. "My job is good in one respect and that is it is easy. I have no heavy lifting and it is nice clean work."
3. "I like the kind of work I am doing because it is my trade, and I have been doing it practically all my life. It is interesting and not very tiresome and the wages are fair."
4. "The work is clean and not very heavy, and you can either sit down or stand up."
5. "I like my job because I can sit down all day long. I asked for that kind of a job when I came here and got it and I get a chance to change off every once in a while so that makes it interesting."
6. "On this job I stand up all day and I like that better than sitting down because I think that when you sit down it takes all your pep away."
7. "Another big improvement that they have made over here, they did away with the cement floor and now we have a creosote block floor. It is much easier on our feet."

Unfavorable Comments

1. "When I think of the last department I worked in I really should be glad to put up with most anything here because I had hard work and it was straight piece work. I had to work very hard to make a little money."
2. "I like my job all right, but the bogey rate on the job is so high I have to keep going at my highest speed all the time and then I just about make it. At night I am all tired out."
3. "When I first started at the Western I was put in the Machine Department. The noise there drove me crazy. That work was too hard for me and I asked to be transferred before I was there very long. They should have taller girls for that job; reaching was hard for me and I got terribly tired."

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4. "The only thing I don't like about my work is that I get very tired at about three o'clock in the afternoon. I suppose that is due to the work I have to do; we do work hard."
5. "There should not be overtime during the hot weather. The men can't do it every night without getting tired out."
6. "Our work is hard. My hands are calloused and sore from the tools I handle."
7. "This is hard work for a girl. We have so many difficulties and since I am here I am getting very nervous."
8. "I never did want machine work but this is all I could get so I took it. I got along on it all right but lately I am on a new job and am not getting my rate yet. The work is so tedious and fine I have trouble all day."
9. "When they give a man hard jobs, they don't make any exception on the bogey. It is the same as if the jobs were easy. You have to go like h--- to make your percentage, especially now that Inspection is so close with us."
10. "The only thing I don't like about this department is the tank that I have to fill. The work is too heavy for me and every time I fill it I get weak. At one time I was sick and ever since then I get awfully weak and sick because the door is too high for me to reach with a shovel and I have lost quite a bit of weight on that job."
11. "I like the job. It is nice work. It is a little heavy, but I am used to heavy work. I lift all the way from thirty to one-hundred pounds each time. It must be considered pretty hard work, for I have broken in two or three helpers on this work since I have been here. They won't stay. They quit."
12. "There is too much heavy lifting on my job. We are lifting heavy piece parts weighing approximately ninety pounds all day long. This grows very tiresome before the day is done."
13. "There is only one thing about the job that is bad and that is that we have to carry trays of parts from one bench to another. These trays are quite heavy and we have to carry five or six at a time. They should provide a truck for us for moving these trays."
14. "The work is too heavy for me. I have to lift heavy stock and big tools."

15. "The control on the equipment is so heavy it takes a man's strength to keep going all day. The way I feel, I don't think I will last much longer on this work. The percentage is good but I would rather not work so hard and make less than to feel the way I do. I am always tired and when I get home in the evenings I am about dead."
16. "We have lots of overtime and I am pretty well tired after working all day and then getting a few hours overtime on top of that. I think that overtime on a job like this is more nerve-racking than on any other kind of a job."
17. "I do not think it is fair to ask a man to work overtime after he has worked on a job as close as this one for eight and three-quarters hours. When we were working overtime every night, we did not turn out any more work a day than we did when we worked eight and three-quarters hours. Of course, the first few days we did, but after that we lost our energy and could not work as fast."
18. "I don't think I should be asked to work on Sundays when I work every night in the week and every Saturday afternoon. I am tired. I think I should have my Sundays to myself. I get so I don't know anything but work."
19. "This is pretty hard work. It is nerve-racking. I am trying my best to stick it out. It isn't the kind of work I wanted but is all they had for me."
20. "I am very nervous and am not able to work fast. The Company has given me a good day rate but I don't feel that I am earning my money because of my nervousness."
21. "Out bogey is too high. I try so hard to make it; I don't leave my place only when we have the rest period. The work is getting me nervous. At first my hands got very sore and I almost gave it up."
22. "It seems I have a great deal of trouble with my machine, and it is kind of getting on my nerves, and when it breaks down, I have to wait so long before it is fixed. I have worked on this job a long time, so I think maybe I need a change. When a person is on the same job so long, it gets kind of monotonous."
23. "When the material runs poor, I sure do not like my work. It makes me nervous, and it upsets me."
24. "One thing I don't like and that is the glasses the Company furnishes. They are too heavy. They mark my nose. When

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I wear glasses they make me nervous. Monday morning when I start in to work, I'm all right, but by Wednesday I get so nervous the glasses just seem to be in my way. I bought one pair of glasses for two dollars. I wore them a while, but I could not get used to them. I bought myself another paid for seven dollars and I'm not satisfied with them either. The doctor claims my eyesight is good that I don't need glasses."

25. "The cement floor in this section is kind of hard on the feet, especially in damp weather. It gives me a tired, aching feeling in my feet, and the muscles of my legs."
26. "Another thing is that we have to stand on steel floors all day. This is very tiresome. Sometimes after standing on this floor all day when it is real hot your feet feel like they are burning up. It would be a great help if the Company would put mats there for us to stand on."
27. "We have no elevator service in the morning, and I think four flights of stairs is too much to walk up. You are tired out before you start your day's work."
28. "On that job in there, I think we ought to have about a half hour rest a day because standing in one place all day is pretty hard on a fellow."
29. "This job gets very tiresome because I have to sit still all the while I am working on it. I get bawled out from the boss once in a while for fooling around because I cannot work as steady as I should."
30. "One thing that I do not like is that the chair is bolted to the floor and cannot be moved closer to the machine. I have to lean forward all day long. I cannot sit in a natural position and it makes my back very tired."
31. "We have new chairs now. They threw our old chairs out. I tell you, I am sore from sitting on these chairs. You sit half your life away so why shouldn't we have a comfortable chair. These would not be bad for other work but doing our work we have to lean over."
32. "I was put in a hard department to work and didn't realize that my health came first. I had to do lifting and stood on a cement floor all day and I kept that up for five years. I broke down in health at the end and never have been the same since. The cement floor ruined my feet and I can't stand long at one time now. Since that sick spell I have never been the same and am under the doctor's care."

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33. "It was pretty hard running one of those machines. It was a strain on my legs. You know how those big foot presses down-stairs operate? Well, it is something like that. You just use your legs all day."
34. "We have to have the lights on as there are too many shadows without them. My eyes are tired at night, and I think that's what causes it. I had my eyes tested when I came here over a year ago, and they were all right then."
35. "The only suggestion I could give is as to the visibility of the light. I think they are very poor. The bulbs don't seem to throw enough light. In day-light, when we have them on, there is not enough light thrown on the work. It hurts my eyes. The lights are generally dirty, and you can't get into them to clean them. I think they should have larger bulbs; something that would illuminate so you can see what you're doing."
36. "I like the work I am doing but there are a few things that get me disgusted about it. I work on shiny parts and when we have the lights in our department on, it reflects on my work and it shines in my eyes. I must strain my eyes when looking at my work."
37. "I don't like working nights. I just came back, but I will have to take another turn at it. It is too hard on my eyes, and I have such a hard time trying to keep awake."
38. "I will tell you another thing. We work pretty hard and when a man has put in eight and three quarter hours he has had enough for one day but when they come around and ask a man to work overtime, that is the limit. A man is so tired by five o'clock that he doesn't feel like working and if he does work overtime he is not fit to work the next morning. They force the men to work and in the two hours of overtime there is not even one good hour's work done because the man is all in."
39. "I think eleven hours a night is too long to work. I usually get pretty tired before morning. I would rather work days than nights as it is hard for me to sleep days."
40. "To tell you the truth, the job is really monotonous because I am doing the same thing day after day and a change from one job to another once in a while would be welcome. I have been on this same foot press for the last four months and do nothing but kick all day and it surely gets very tiresome at times because after a man has been on any job for a certain length of time and gets to know all there is to know about that particular job it becomes stale and the man loses interest in it."

This analysis was made with the idea of showing, "What the employee says" about the subject of fatigue and the comments are grouped as favorable and unfavorable. First, considering the analysis from the standpoint of what the employee says about fatigue, we find that 1,264 women and 1,011 men made comments on this subject. These comments were divided into favorable and unfavorable; 447 men and 517 women making favorable comments, and 564 men and 747 women making unfavorable comments. The percentages were figured for these, which show that the men made 46.4% of the favorable comments or 19.6% of the total and 42.9% of the unfavorable or 24.8% of the total; the women made 53.6% of the favorable or 22.7% of the total and 57.1 of the unfavorable or 32.9 of the total. The men made 44.4% of the comments and the women 55.6%. Considering that there are fractionally two men to one women (6500 men and 3800 women) interviewed, the percentage of comments received shows a decided tendency on the part of the women to talk about fatigue. If the comments had been evenly divided among men and women there should have been 66% from the men and 34% from the women, however the ratio received, 45% and 55% really means that we received a comment on fatigue from every 3.5 women compared to one from every 14.5 men. The ratio hold fairly close in the number of favorable and unfavorable comments, the women showing a small increase in the percentage of unfavorable comments. On the basis of these percentages the women seem more susceptible to fatigue than the men in the Operating Branch. The type of work in this branch is representative of the work done in the Plant so we have a fairly ac-

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curate picture of comments made on practically every class of factory work.

Taking up the favorable comments we find 517 women and 447 men commented favorable on their work. This group of favorable comments deals mainly with the ease of the work, the employees saying their work is: - "easy," "not hard," "clean," "not heavy," "don't have to work hard," "and have no lifting to do." About 75% of the comments are in this class. The rest say that: "the work is not tiresome," "is interesting," "like the job because you can either sit or stand," "because you can sit all day," "prefer to stand," and "the new floors are easier on the feet than concrete." The comments are about evenly divided among men and women except in the group where they state that "They like the work because they can sit down" and here the women have a three to one preference. This indicates that women desire jobs where they can sit all the time or at least part of the time as evidenced by a three to one preference in the group on "either sitting or standing."

The statement of so many of the employees merely say that the work "is easy" or "not hard" and this really does not give any information on fatigue unless we can say it indicates that there is no abnormal fatigue present. In another group, the employees say that the work is easy, light, not heavy and have no heavy lifting to do, pointing out the fact that many do not like to do any lifting; in fact, in the unfavorable comments, we find a large group commenting on the heavy work and lifting.

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Summing up the favorable comments, we find from a fatigue standpoint that it mostly depends on the individual as to just what is fatigue. The only group which gives something really definite is the one saying: "The new floors are much easier on the feet than the concrete floors."

The 964 favorable comments were listed under seven different groups.

The unfavorable comments numbering 1311 were divided into forty groups, with no group showing any real large number of complaints. The largest group being the one, "The work is hard and we have to work hard," which contains comments by 88 men and 95 women. The group on, "Standing up all the time makes you very tired," contains comments by 68 men and 74 women. The other groups run from 38 comments down to one.

It is interesting to note that the employees in their unfavorable comments talk about a large number of things, from hard work to the heights of the benches and machines. In very few groups do the comments by the men outnumber those by the women and where they do it can be explained by the fact that it is primarily a man's job, except in the case of the groups where they say, "The work is hard on the eyes," and in this group there are 22 men and 12 women. In the group in which the employees state, "that the night hours are too long and can not get the proper rest during the day," there are 30 men and 12 women, but the proportion of men working at night as compared to women overbalanced this. The comments talking about nervousness are primarily by women (17 men and 87 women) indicating women have a tendency to become nervous

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under the strain of working fast, or if handicapped in any way.

Summing up the unfavorable comments, we find the following:

31 men and 80 women commenting on the effects of overtime.

49 men and 35 women commenting on the effect of the work on the eyes.

111 men and 140 women talking about the work being hard and have to work too hard.

25 men and 46 women say that the work tires them out.

122 men and 124 women say the work is heavy, must carry heavy work or do too much heavy lifting.

18 men and 28 women complaining that the job or work makes them nervous.

32 men and 22 women complain about the effects of working on cement and metal floors.

102 men and 131 women comment on the effects of different types of posture.

21 men and 21 women say that the work is ruining their health.

38 men and 16 women commenting on the length of the working hours and the effect on them being too long.

5 men and 4 women claim that running a kicker makes their feet and legs tired and sore.

15 men and 5 women say that the work is very tiresome.

1 man and 4 women say that the chairs furnished are uncomfortable.

2 men and 22 women claim that climbing several flights of stairs tires them out before they get started to work.

This is a brief summary of the unfavorable comments, 564 by men and 747 by women. These unfavorable comments give more of a picture of fatigue than the favorable, because definite statements of how and why the employees think the work or job affects them.

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Where they say the work tires them out, is tiresome, hard, and such expressions while indicating fatigue, fail to give any basis on which to judge whether there is any abnormal fatigue. Of course, some employees may feel abnormal fatigue at times and at other times no more than the normal amount, which is natural to the work. In considering the groups that say, "The work is too hard for me," "makes me very tired," "is injuring my health," "must do much heavy lifting," and "the work is so heavy that I will not last long," indicates that there may be some abnormal fatigue here. The only basis we can use is the previously listed statements as hard, tired out, etc., as a comparison. The latter group, compared this way, indicates the employees mean that the work is taking away more energy than he or she is able to regain during the regular hours allowed for rest. It is realized that this condition may not always be the result of the job but may be the results of some other condition which does not permit the employee to get the proper rest.

The comments about long hours and overtime are indicative of abnormal fatigue. The night hours are long and when the employees are compelled to work six and sometimes seven nights a week it is injurious to the health. The normal employee will not be able to stand this extra drain on the system for any length of time. After a few weeks of overtime the employees' production curve goes down, they get sleepy during the middle of the night, they do not sleep good during the hours allowed for rest, and they claim they can not eat good. All these tend to show that there is accumulative fatigue and its ef-

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fect on the normal employee. The question is, when does accumulative fatigue begin to have an effect and how long a rest is necessary to overcome it. It has been found that on certain types of work the employees do not show any signs of accumulative fatigue; but the inadequate methods of measuring in use at the present prevent any conclusions being drawn from the data. The very fact, that the body needs a period of rest after the average day's work tends to point out that there is accumulative fatigue present after a period of work. Again, each individual's body efficiency varies to such an extent that it is impossible to attempt measuring fatigue without considering all the variables which compose the individual's entire situation. Since at the present time it is not possible to relegate any one of these composite variables to its proper place in the total situation, it is folly to even make any assumptions about the amount of accumulative fatigue present at any time. The employees' comments, however, do indicate that fatigue does accumulate, when they state that a prolonged period of overtime results in a run-down condition. As to the length of time necessary to bring about this condition or to overcome it, will depend entirely upon the individual. Also, each individual's resistance and recuperative power will depend upon the mental and physical make-up.

There is another element which must be taken into consideration when the subject of overtime is studied and that is the extra pay received for overtime. The employees in many cases are willing to work overtime for the extra money; but the comments also show that this in-

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centive loses its appeal after a few weeks and the employee is glad to stop working overtime. This is only one of the many individual variables which enters into the question of overtime.

The employees' comments on overtime seem to indicate that they are unfavorable to working any length of time over the regular hours, and when they do work overtime for any length of time, it results in a lowered mental and physical condition.

The comments on the fact that they must carry heavy work or pans of material can be easily remedied by the placement of the work or parts and stopping the habit of over-loading the pans with parts. The investigations into the carrying of loads have nearly established the fact that 35 to 49 pounds is the maximum load for women and this load should be carried in the proper posture. If in carrying these loads the employee is forced to throw the body off its proper balance, the load becomes a strain, the pans which are overloaded with parts, and are awkward to carry, put an undue strain upon the woman employee. With men, the load which may be handled, is different, the weight depending on the physical size of the man mostly. However, it must be borne in mind that there is a skill in handling heavy work which can not be acquired by all men, making the work much harder for some than others. Work that is so heavy that it takes a continual strain to lift, should be handled by trucks, because a mis-step or slip on the part of the employee will probably lead to a rupture or other serious injury. Work of this type will cause an abnormal amount of fatigue if improperly handled or the proper amount of rest is not allowed.

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The comments on chairs are contradictory as far as the new types are concerned. Some claiming that the new chairs are uncomfortable while others say they are an improvement over the old type. The question of the comfort of a chair will depend upon the stature of an individual, the position in which employee must sit to do the work and the placement of the chair before the bench or machine. There are a number of complaints on the fact that the chairs are fastened to the floor and it is impossible to move the chair to a position before the machine which is comfortable. The mental attitude of an employee is very easily changed by such conditions as well as the fact that there may be an undue physical strain produced by an unnatural position.

The groups which complain about the work being hard on the eyes or a strain on the eyes, talk about reflections, shadows and lights. There are four women who say that night work is a strain on the eyes; this may be entirely due to dim lights (which is doubtful since only four are complaining) but there may be a possibility that these women are not getting the proper rest and the natural result would be that the eyes would be under a strain on any type of work or at any time. The complaints on shadows and reflections, if they are caused by improper lighting and can be easily remedied by proper placement of lights. Harsh shadows are an evil that must be avoided if possible and although shadows are essential to make the work stand out properly, yet these shadows must be soft. There is always a chance for reflection on shiny parts, which will interfere with quality and quantity of the work. The machines that have shiny parts which are continual

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ly in motion may also affect the eyes and put a strain upon them because of the tendency for the eye to follow that motion. Black moving parts on machines will remedy this condition.

Considering the 2275 comments as an indication of what the employees say about fatigue, we find that the unfavorable are the ones which give the definite facts. Here, the employees have also failed to give us any definite facts to use as a measuring stick. Naturally, the comments which say that particular things are wrong with the work or machines, are helpful because these can be remedied. The rest of the comments give a good picture of what the employee has to say about fatigue and how he expresses himself on this subject.

It is well to consider when studying the analysis on fatigue that they are primarily an index to what is to be found in the comments. To get a complete picture of how and why the employees express themselves about the subject it is necessary to study the actual comments. It will be found that the employees in their comments have connected the subject of fatigue with nearly all the conditions which go to make up their entire industrial, home, social, leisure, and religious lives. Thus, it is safe to conclude that until the relative importance of all these variables can be decided upon, and placed in their proper sequence to the subject of fatigue, it will be impossible to reach any definite conclusion on the individuals' reactions to fatigue.

The study of the 2,275 comments on fatigue seems to point out:

1. That so far we have no basis to use as a comparison for the employees statements.

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2. That the employees definitely tie up their statements about fatigue with other subjects in such a way that it is almost impossible to consider fatigue without taking these into consideration.
3. That the different employees may have the same meaning in mind in making some of these statements, but they are expressed in different words, thus making it impossible to reach any definite conclusion about them.
4. That each individual in his statements about his fatigue reactions will have an entirely different set of situations influencing his comments.
5. That fatigue can be considered from so many different angles that it is impossible to develop each angle which the employee brings out at present.
6. That these comments bring out the fact that the employee does not differentiate between physical and mental fatigue, and that in all probability they are so closely related that the employee does not recognize any difference.
7. That in this plant the women make approximately 4.14 comments to 1 for men indicating that women are more susceptible to fatigue from their work than the men are from theirs.
8. That the comments by women seem to point to the fact that the fatigue they are talking about is to a large extent subjective and that conditions outside of the work plays an important part in producing this condition.
9. That fatigue is purely an individual reaction which is influenced by all the complex situations which go to make up the environment of the present day men and women.
10. That to make a study of fatigue all these complex situations must be given consideration and their relative importance to the individual reactions established.

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Hosp.

UNIVERSITY OF WISCONSIN - MILWAUKEE

November 4, 1930.

SUMMARY OF CONCLUSIONS DRAWN
FROM A STUDY OF 2195 COMMENTS ON HOSPITAL
TAKEN FROM 10,300 OPERATING BRANCH (1929) EMPLOYEES' INTERVIEWS

A review of the Substance Analysis and employees' comments on the subject of Hospital provides a number of interesting as well as enlightening facts relative to the employees reactions to the present Company Hospital and its Personnel. Before going into this subject it may be well to state that all comments under this subject were made in the Operating Branch during 1929. It must also be remembered that the average shop employee has little, if any, actual knowledge of the science of medicine, its administration, and the modern methods of treating injuries and illness in industrial hospitals. Still another factor to be borne in mind is that many of the comments emanated from foreigners who are more or less inclined to be clannish and consequently patronize doctors of their own nationality. It is possible that a number of them are not as up-to-date as they should be and in some cases capitalize on this clannishness, using this as a means of revenue by keeping their patients returning to them for treatment of imaginary ills.

The overall picture as presented in the substance Analysis is decidedly favorable, approximately 78% of the comments received being favorable. In determining the weight to be assigned to each classification in the Substance Analysis, it is logical to assume that employees talk in proportion to the thoughts they have on the subject; therefore, in the favorable group we find those comments

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relating to the good service received, the considerate attitude of doctors and nurses, and expressed appreciation of the Company hospital as being the most predominant reasons why they like the hospital. Other interesting reasons are set forth in the analysis, but we believe that several should be mentioned here from the standpoint of employees' welfare. They are classification No. 5, "I like the women doctors they have here," and No. 24, "The Western Electric takes better medical care of employees than other firms." The employment of women doctors is a quite recent innovation and apparently it has struck a responsive cord among the women employees. The No. 24 classification is a gratifying piece of information as it indicates that adequate and competent hospital facilities are a potent factor in keeping the company sold to the employees. The balance of the classifications present a variety of interesting reasons why they like the company hospital and gives a good insight into the employee's reactions to existing policies.

We must, however, consider the unfavorable classifications with a view of seeking constructive criticism toward a possible betterment of conditions. A careful resume of the unfavorable classifications as listed in the Substance Analysis indicates that the employees' dislikes divide themselves into four general classes; i.e., (1) Attitude of Doctors and Nurses, (2) Treatment and Diagnoses, (3) Routines, and (4) Miscellaneous.

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Listed below is a distribution of the unfavorable classification into these groups:

GROUP I.			GROUP II.			GROUP III.			GROUP IV.		
Attitude of Doctors & Nurses			Treatment and Diagnoses			Routines			Miscellaneous		
Comment			Comment			Comment			Comment		
No.	Men	Women	No.	Men	Women	No.	Men	Women	No.	Men	Women
1	0	3	4	10	3	9	9	7	6	12	0
3	23	5	5	24	69	11	1	1	7	3	0
8	5	0	10	53	29	12	13	4	15	2	0
13	13	6	17	5	3	14	2	0	16	2	2
24	6	29	18	2	10	21	5	3	19	1	0
29	2	5	20	1	0	25	1	0	27	2	0
31	1	2	22	2	1	26	1	4	30	1	0
36	5	0	23	16	11	28	0	3	34	0	1
Total	55	50	32	1	0	44	1	0	35	11	0
			33	7	6	Total	33	22	38	0	1
			37	5	7				39	1	0
			45	3	5				40	1	0
This group represents 22% of all unfavorable comments received.			Total	129	139	This group represents 11.4% of all unfavorable comments received.			41	1	0
									42	0	2
									43	0	1
			This group represents 56.7% of all unfavorable comments received.						Total	37	7
									This group represents 9.8% of all unfavorable comments received.		

In the first group, classifications No. 3 and No. 13, we find a number of employees who feel that they were entitled to treatment at the Company hospital due to (alleged) injury at work but who were forced to seek outside medical attention because the hospital decided that the injury was a non-Company case. Quite a number of these are hernia cases. It is admittedly difficult in most cases for the employees to understand the causes and probabilities of hernias and in view of the fact that their so-called "heavy

work" is done here, it is logical for them to assume that their rupture was received on the job. Considering the large number of cases of this nature, it is probable that some of the cases complained of were legitimate, but it is of course impractical to accept all cases as company cases, and about the only course of action is to decide each case on the facts presented.

The remainder of this group of complaints comprise those where the employees feel that the attitude of the hospital personnel is not what they expect it should be. Classification No. 24, "The Company nurse or doctor are too fresh, (discourteous, too personal, ridiculous, do not believe us)," is a good illustration of the nature of these complaints. It must be remembered, too, that often the employee is not entirely normal when dealing with the Hospital which may account for the censorious tone reflected in some of the comments. The following comments are representative of this and bring out clearly just how the employees react:

"I have one grievance and that is with the Company hospital. When I was sick, I had some nurses that visited me and they were very abrupt in their manner and made me feel as though I was trying to put something over on them. When you are sick, it is kindness you need and courtesy."

"I have been sick, but this is the first time in eight years. The doctor ordered me back to work, but I am not well. I don't like the attitude they take at the hospital. That doctor looked at me in such a way as though I was trying to put something over on him. I have a very bad cold and don't seem to be able to get rid of it. My doctor tells me to stay home and if I don't, at the end I may have to be off longer than if I would take care of myself now."

RW

The balance of the classifications under this group are self-explanatory--the general concensus being that too little credence is given to the employee's side of the case.

The second group to be considered is by far the largest and includes those classifications dealing with complaints regarding medical treatment received, alleged erroneous diagnoses made by company doctors, and differences between the employees, doctors and company doctors. This group of comments represent 56.7% of the unfavorable comments received.

Classification No. 5 - "The doctors are too keen on getting us back to work; they tell us to come or go back before we are well," is the largest classification. Classification No. 10 - "They give you poor treatment at the hospital (rough, painful, unsuccessful, wrong diagnoses)" with 82 comments is the second highest. Another common complaint in this group is Classification No. 23 - "The Company doctors would not accept my doctor's word." These are the outstanding complaints and are self-explanatory. The other classifications under this group, while not having as many comments as those cited above, present various cases which, in the opinion of the employees, indicate incompetency, disagreement within the hospital personnel, unreasonable orders, loss of time, and a disregard for employees' doctor's opinions.

The third group is made up of unfavorable comments regarding existing routines in connection with the hospital. The most outstanding classifications from the standpoint of number of comments are No. 9 and No. 12 which are as follows: "There is far too much red tape at the

RW

hospital here (questions, passes)," and, "The Hospital says we are to have light work or change of job etc., but the bosses don't obey the instruction." Regarding the complaint about red tape, it is doubtful whether or not the employees making this comment have an adequate conception of managing an organization rendering the volume and kind of service as given in the hospital. No suggestions are offered by them as to how the necessary information could be obtained; their only statement being that the present method is objectionable. The other complaint regarding lack of cooperation on the part of the Operating Department bosses probably possesses more merit. There are a total of 17 comments of this nature. They represent something which is very vital to the employees' welfare and happiness, i.e., good health. In each of these comments, the hospital had apparently recommended a lighter job or a change of work, but for some unknown reason this request had not been carried out and the employees' health was continuing to be jeopardized. Whether or not it is the hospital function to check back and ascertain whether their request had been complied with is, of course, a debatable question. However, the fact that some of our employees are forced to perform work which is endangering their health, even after the hospital has requested a change of job, surely cannot be ignored and is not in keeping with the welfare policy of the Company. The rest of the comments, while not representing a very large quantity, give some interesting side lights, but insofar as we can determine there is nothing of a practical value.

RW

The last group contains a lot of miscellaneous comments which could not be classified to the other groups and represent only 9.8% of all unfavorable comments received. Some of them make suggestions which, obviously, are not practical. The balance of the complaints recorded in the comments in this group either have already been corrected, or the employee is subject to obsessions when brought in contact with anything which pertains to hospitals, doctors, etc.

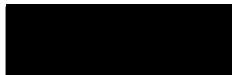
Summarizing the subject of Hospital, we find this subject is one for which a large number of employees have expressed a definite like or dislike. In order to illustrate this, we have taken the figures at the head of the Substance Analysis and translated them into percentages as follows:

2.7%	of all comments received were Hospital comments.
78%	" " " " on Hospital were favorable.
22%	" " " " " " " " unfavorable.
35%	of all women interviewed commented on Hospital.
14%	" " men " " " " "
82%	of women comments received on Hospital were favorable.
73%	" men " " " " " "
18%	of women " " " " " unfavorable.
27%	of men " " " " " "

It is interesting to note the large percentage of women commenting as compared with men which seems to substantiate the old adage that women enjoy talking about their illness or any associated subject. The men comments, however, are more unfavorable, 27%, as compared with 18% of the women comments. As stated above, this subject is decidedly favorable among both sexes. This is, of course, particularly gratifying

RW

in view of the nature of this subject. The average shop employee's knowledge of this subject is very limited and his comments are the direct reactions of his contact with the Hospital strictly from an employee's viewpoint. As we must consider this angle in the formulation of the hospital policies, these comments are naturally valuable. In picking out comments which will be of assistance in the improvement of the hospital, Groups I and II shown in the above analysis seem to offer the best possibility for research work along this line.

 - 6088-4.

RW

Hours

UNIVERSITY OF WISCONSIN - MILWAUKEE

COMMENTS SHOWING EMPLOYEE REACTION TO
7:30 - 8:30 STARTING TIMES

6372--9-11-30--W

"With the hours that we have here, I imagine it would be much better for the girls if we could start at eight o'clock in the morning and then go home at five or five fifteen whenever they wanted us. It would be a lot better for the girls because we could get a little more sleep in the morning. Then we would feel more like working. It's pretty hard when you have to get up at six-thirty in the morning. I never have any time to get my breakfast. All I can do is get my lunch put up."

6366--8-7-30--W

"The rest period is wonderful, but I'd rather have the time in the morning and not have to get here so early. When I started working here, we worked until 5:15. Now we only work until 5:00, so it is better in a lot of ways. It isn't that I want more for myself, not that, but I do think it would be nice if that twenty-five minutes were put together and we could come here a half hour later in the morning."

6718-1--10-3-30--W

"I always did have it in mind that I would like to get regular 8:30 hours. I feel so much better since I am coming in at 8:30. It seems as though I'm starting my day off right. Before that I was so tired in the mornings and it always seemed as though I had the thought in mind that I would have to get up so early in the morning. I was sure glad to get off of the 7:30 hours."

6799--6-26-30--M

"There's this question of eight-thirty and seven-thirty work. In the other outfit where I worked, I used to go to work at eight-thirty. It was much easier. I had more ambition all through the day."

6035-5--10-28-30--W

"I wish I could work on the eight-thirty shift. I don't know, I just feel as though everybody looks down on us shop clerks. They seem to think we are not as good as they are, but you know some of the girls in our branch have got a far better education than girls up there in the office. I've always had that desire to work in the eight-thirty shift. Do you suppose that I could ever be transferred?"

5047--12-3-30--W

"Since I am in the office, believe me, I notice that extra hour. It doesn't seem that you would notice one hour, but that one hour in the morning does me more good than two hours during the night. It seems like I get so much rest now."

6309-5--4-16-30--W

"I like my work real well. I just came up to this organization about a year ago and I was so glad to get up here on account of the hours of the morning."

6167--11-6-30--W

"Every person that works on the seven-thirty roll, I think hopes some day to get to where they can work on the eight-thirty roll."

7381--10-1-30--W

"You know, I was thinking. We're working till 4:15. I don't see why we can't have that extra time in the morning and then work until 5:00. That would mean we wouldn't have to come to work till a quarter after eight. That would suit me fine."

6349--10-3-30--W

"We are going home at 4:15, and I would like to suggest that we be allowed to come in to work an hour later, that is, I mean 8:15 in the morning and be allowed to work until five o'clock. For one thing, it would be light, and we all like to sleep in the morning. I would prefer to come in at 8:15. Then I will not have to run in and then take time to recuperate."

6329--5-16-30--W

"I don't mind these short hours, but I would much rather start later in the morning. This hour in the evening is wasted because my sister and I get home early and my brother gets home later, and then my sister still later. When my sister and I get home there is nothing to do, of course, we are hungry. We can't expect my mother to make supper three times so we just sit down and wait."

9391--9-9-30--W

"On thing I think about this place is that they start too early in the morning. If you live any distance you've got to get up so early. I would rather have a shorter lunch hour and work fifteen minutes later in the evening."

9356--11-3-30--M

"I think that they ought to let us start later in the morning and then go home earlier in the evening. You can't make much use of that evening any more, you know, in the winter time anyway. You can always enjoy that three-quarter hour sleep anyway. If we work till 4:15 why let us start about 8:15 and go home about 5:00. I would like it much better than going home at 4:15. I rather sleep in the morning than stay around the house in the evening."

5317--8-5-30--W

"Are we going to work until a quarter after four all year? I was wondering why they don't have them come at quarter after eight in the morning instead of having us get out at 4:15. That would be better than getting up that early in the morning."

6525--10-7-30--W

"I'd like to start later in the morning and work later in the evening. I have to get up pretty early in the morning because it takes a long time to get down here."

"It takes me at least an hour. I get up about five-thirty, get dressed, make breakfast and make my lunch. I don't mind getting up in the summer time, but I don't like it in the winter. It seems it's so hard to get up then, you like to sleep when it's cold."

6087-1--2-7-30--M

"Another thing, I hate to start working at seven-thirty in the morning. You know, in most places they start at eight o'clock."

Int.

UNIVERSITY OF WISCONSIN - MILWAUKEE

June 13, 1930

"INTEREST" AS EXPRESSED BY THE EMPLOYEE

Although the substance analysis of employees' comments has been made wholly from the angle of what the employee says, the results of that substance analysis sometimes suggests that a further analysis should be made of certain subjects, viewing the comments from the angle of what they mean rather than what they say, in an attempt to determine the importance of particular subjects and whether they should be retained as separate subjects. Although it is realized that at the present time the work has not developed fully enough to provide material to make a thorough analysis of what the employee means by what he says, some fairly valid conclusions can be drawn from the material at hand.

A substance analysis of 1874 comments on the subject "Interest" resulted in the following facts: In 886 comments the employee merely said that his job was interesting, that he was interested in his work, or other like phrases, without giving any reason for his interest or telling what it was that held his interest. Of these 886 comments, 693 were so closely interwoven with a statement expressing like or satisfaction of work or job, that the same comment was also classified under the subject "Placement". In 385 comments the employee said he was interested in his job because it was doing something different all the time. Of these 385 comments,

286 were also allied with an expression of liking for the job. The remainder of the 1764 comments which were of a favorable tone were divided in small numbers among 54 other groups, all giving one reason or another for the work being interesting. Of the 110 comments that were of an unfavorable tone, 32 were mere statements that the job was not interesting, no reason being given for that absence of interest. Of those 32 comments, 21 were also listed as "Placement". The remainder of the 110 unfavorable comments were divided among 15 groups giving various reasons for absence of interest. Of the total number of comments, 1486 were also classified to "Placement" leaving only 406 "Interest" comments that were not duplicated in the subject "Placement".

Now to make some examination of the meaning of these facts. Fifty per cent of the total number of comments are merely a statement of interest without any reason being given. Seventy-eight per cent of this same group are also "Placement" comments expressing a like for the work or job, and 79 per cent of the total "Interest" group are also classed as "Placement" comments. Thus it seems that the employee must think of "interest" and "Placement" in almost the same breath. A careful examination of the definition of those comments that are to be classified as "Placement and Transfer" seems to explain this fact. The "Placement and Transfer" definition is "The Allocating of employees to jobs and then shifting between jobs. Comments expressing like or dislike, satisfaction or otherwise". Here it appears that comments expressing satisfaction or

dissatisfaction with the work or job are classed as "Placement".

What is an expression of interest other than an expression of satisfaction? When the employee says that he is interested in his job, is it not correct to say that what he means is that he is satisfied with his job or that he likes his job, and that it thus becomes a placement problem?

One employee says: "The work is very interesting. I am well satisfied with my job".

Another says: "My work is very interesting and I like it".

Another: "I was transferred to this department because the other department moved away from Hawthorne. I like this job much better; it is more interesting, less dangerous, and I don't have to work nearly so hard".

Undoubtedly all these employees mean by what they say, is that they are satisfied with their work. It does not seem particularly important or significant that in expressing their satisfaction they use the word "Interest".

If the employee means only that he is satisfied or that he likes his work when he says he is interested in it, then the "interest" comments are rightfully placed in the "Placement" group, and it would perhaps be possible to do away with the "Interest" group and put all comments expressing "Interest" under "Placement". However, as it is yet possible to make only very inadequate statements and conclusions about "Interest", it does not seem advisable


to do away with the classification entirely. If those comments can be retained wherein the employee gives an explanation or reason for his interest in his work, it may eventually be possible to determine what he means when he uses the word "interest".

The original criterion for determining what comments should be classified under "Interest" was: "Interest - expressed as such by the employee". If that criterion can be changed to read: "Comments wherein the employee expresses a definite interest or lack of interest in the work or job, and gives an explanation or reason for that interest or lack of interest", it would mean the retention of all those comments that may aid in finding out what the employee means by "interest", and still be doing away with a large percentage of duplication between "Interest" and "Placement".

In other words, those comments wherein the employee says that his work is interesting, and gives no reason for that interest, seem to be of little or no value in answering the question of what he means when he says "interest", and as they seem properly to fall within the scope of another classification, it would be useless to retain them as "Interest" comments. However, it may be possible to learn something more about what the employee is referring to when he says "interest", by retaining in a separate group all those comments wherein he tells what it is that holds his interest, or what the factors are that make his job interesting.

- 5 -

With this thought in mind, it would seem advisable to proceed on the suggested basis, until such time as the question of what the employee means by "interest" can be answered more definitely.

 - 6088-4.

MM

Monot-
ony

May 28, 1930.

CONCLUSIONS DRAWN FROM A STUDY OF 571 COMMENTS
ON MONOTONY TAKEN FROM 9300-1929 OPERATING
BRANCH EMPLOYEES' INTERVIEWS

The comments made by the employees are worded in so many different ways, and the same thing said in such different ways that it really was impossible to classify them under favorable and unfavorable. The fact is that we are not sure just what the employee means by some of the statements, so the comments were grouped according to the wording of the statements and tabulated in this way.

Checking up on the tabulation of these comments it is found that fifty-eight men and forty-two women say the job does not get monotonous because they are doing something different all the time, also sixteen men and eighteen women claim the job is interesting and never gets monotonous. Another group of nine men and two women say that doing different kinds of work keeps the job from becoming tiresome or monotonous, while another group of ten men and two women say they like the job because they are doing something different all the time. Still another group claim they do not get tired because they are doing something different all the time and still another group, that doing something different makes the job interesting. There we have several different groups it seems saying the same thing in different ways. Now the question is, do the employees really mean the same thing or not? Do they mean the same thing when they say monotonous, tiresome, tired, and uninteresting. The comments seem to point to the fact that these words as used by the employee pertain to their meaning of monotony. It is also easy to see that, since they are individuals, that each one of these words may have a dis-

tinctive meaning to each one and in that case it can not be said that these different groups are saying or meaning the same thing by their different statements. Another viewpoint of this may be that each individual is expressing just his or her own feelings and in the words that they ordinarily use in their environment. From this point of view it can be deduced that the different groups really mean practically the same thing.

The word 'monotony' has been applied to all repetitive work for so long that it has been accepted without proof by a majority of the working class. We will not question the fact that repetitive work may be monotonous to some individuals, but since each operator is an individual it stands to reason that repetitive work then will not be monotonous to all. For proof of this fact there is a group of fifteen women and two men who distinctly say that doing the same thing over and over does not make them tired and another group of fifteen men and nine women who say the job is not monotonous. One man distinctly makes the statement that he likes monotonous work. Many of the employees claim that doing the same operation on different machines is not tiresome or monotonous, so we can easily see that all repetitive work is not monotonous to everyone.

Miss Goldmark makes the statement in her book "Fatigue and Efficiency" p. 61, "that repetitive work which keeps the operator constantly alert soon becomes monotonous." Among our comments on monotony there is a group of six women who claim that doing the same thing over and over is not monotonous. Also the general tone of the comments that claim the work is monotonous, base their claim on the fact that the work does not keep them alert. By checking up

But 110 men
+ only 87
men "say distinctly
that their jobs
are not
monotonous"
(page 3) also
on page 2
1 man who
likes monotonous
work


we find that one hundred and ten men and eighty-seven women say distinctly that their jobs are not monotonous, and most of this work is repetitive. Another fact that stands out clearly is that out of 9318 interviews only 571 comments were made on monotony; what about the other 8747 employees who did not comment on this phase. It seems possible to presume on the face of the substance analysis that the jobs these employees are on are not monotonous. It is nearly an established fact that an employee who is satisfied on his or her work will not comment on it thus making it impossible to get the real number of favorable comments to compare with the unfavorable. We can reasonably presume that if these 8747 employees who did not make any statement on monotony had done so, that they would have been to a large percent favorable.

There the question arises of how to distinguish between favorable and unfavorable comments on monotony. A study of these comments leads to the conclusion that it is all in the mental attitude of the individual. Each individual will react to his job in a specific way peculiar to his own individual self and attitude. This would mean that repetitive work may be monotonous to some while to others it will be vastly interesting. No doubt there will be many variations leading from the individual who finds the job interesting to the one who says it is very monotonous. Probably at least three classes will stand out. i.e.: those that find it monotonous and a large group that do not really think of the job in that light, or are merely neutral. To the third or neutral group there is something else that is occupying their minds and the work is of a secondary consideration, thus leaving the impression that monotony does not

originate in the job alone. The tabulation shows that women are not so sensitive to monotony as men, leading us to believe that they have more of a tendency to work more with a reflex action and occupy their minds by day dreaming about other things. Woman by nature can work and dream of other things and be perfectly satisfied on the job, thus we find them employed in the types of work which permit of this condition. The men in their comments seem to point to the fact that most of them desire work that will keep their minds alert and active, something that presents new problems to be solved continually.

Summing up the comments leads to the conclusion that the job cannot be classified as monotonous or otherwise. It is all dependent upon the operator and his mental and physical make-up. Men and women will be distinctly different in their reactions to many kinds of work as well as men will differ with men etc. Again it is possible that at one time a job will be monotonous because of some other irritating conditions which are prevalent at that time, but if these irritating conditions are removed the individual may entirely reverse his opinion of the work being monotonous. The ambitions of an individual will cause a definite goal to be set up toward which he or she intends to work and any job which will eventually lead to this goal will be interesting and lack monotony. Thus it seems that we may cast aside the old theory that all repetitive work is monotonous and confine our time to studying the individual in an effort to ^{clarify} the type of individual who can do this kind of work without it becoming monotonous.

The study suggests that the work is not monotonous, but that monotony is an individual reaction to any kind of work which fails to give him or her the satisfaction which they are expecting from the job. The degree of satisfaction demanded from the job may depend to a large extent upon the age, nationality, environment, training and mental and physical condition of each individual.

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MA

Significance
of .60 & .00
correlations
depend
entirely on
number of
cases

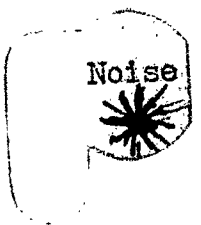
NB. PAGE 4. NOTE ON MONOTONY.

"The tabulation shows that women are not so sensitive to monotony as men, leading us to believe that they have more of a tendency to work more with a reflex action and occupy their minds by day dreaming about other things."

The writer from the results of some experiments on simple mechanical learning, reached a somewhat similar conclusion. Not only do women work at a particular activity (once it has been learned) in a more mechanical manner than men, i.e. at a lower intellectual level, but the results of the writer's experiments would tend to show that women also learn any simple motor, (muscular) activity in a more mechanical and less intellectual manner (or less thinking about it) i.e. (less using of intelligence test intelligence.) The writer for instance found a correlation of .60 between intellectual ability and maze-learning ability (the acquisition of a simple motor habit) for a group of men, while for the group of women it was .00 indicating that the women did not use intellectual ability in the learning. The two groups were equal in intellectual ability and also in maze (motor)-learning ability, i.e. the nature of the learning problem was so simple that it did not require intellectual ability to master it. Yet, in the men's group the efficiency of the two is definitely related and in the women's group not at all. The sex difference is a suggestive one and falls in tune with Mr. Thomson's remarks on this topic in his discussion of "monotony".

The suggestion is, then, women are more likely to make a better adjustment to a routine job as it tallies more with her inherent mental make-up. There are individual differences of course, even with the two sex groups, which must be taken into consideration.

EH



June 2, 1930.

CONCLUSIONS DRAWN FROM THE SUBSTANCE ANALYSIS
OF 91 EMPLOYEE COMMENTS ON NOISE
TAKEN FROM 9300 INTERVIEWS FROM THE
OPERATING BRANCH IN 1929

The fact that only 91 employees made comments about noise out of 9,300 interviews indicates that the ^{average} effect of noise on the average operator is of minor importance. It would seem that the employee gets used to the noise on the job and becomes immune to it to such an extent that it is not noticed. One group of employees emphasized this (5 men and 6 women) when they stated "that the noise was bad at first, but it does not bother me now."

The favorable comments (14 men and 13 women) are about evenly divided showing that there is not much difference in appreciation of quiet. However, in the unfavorable comments there is a little more variance. Two groups of employees' comments here bring out the fact that there is a difference in the reactions on noise between men and women. In the group which says that "the noise gets on my nerves" there are 10 women and 1 man indicating that the noise makes a woman nervous when it does affect her. Another group saying "it is too noisy in here" contains comments by 10 men and 1 woman. These groups tend to point out that women are more sensitive to noise and that it will get on their nerves, while the men will complain about the noise, but it does not run into a nervous state,

June 2, 1930.

as in the case of the women. A typical expression from the women is: "It is so noisy at times and I am so nervous that I do not know what to do. There are times when the noise gets the best of me - I could just scream". The men in their comments "that it is too noisy in here" say "It is awfully hot and noisy in here".

The comments show that some women are of a nervous temperament, and these are, no doubt, affected by the noise. Any unusual noise irritates them and puts their nerves on edges as is evidenced by the fact that out of 6 comments on the noise from the air pressure pipe, 5 of them are women who claim that the noise is very irritating. The comments by the men indicate that although the noise is sometimes bothersome, that it is of secondary importance and in all probability will vary with their physical and mental attitude.

The fact that so few men and women commented on noise, leads to the view that there may be some people who are more susceptible to noise than others, and that it is this class that are making the complaints. These comments also tend to show that it is the unusual noise, as in the case of the air pipe, that affects the women, while the noise from the machinery draws more complaints from the men. In the case of the men, it can be partly explained by the fact that they are operating the heavier machines and thus

June 2, 1930.

subjected to much more noise than the women. What would be the reaction of the women to the noise of this heavy machinery were they actually doing the work, cannot be estimated.

In summing up the thoughts on noise the number of comments leads us to believe that noise is of secondary importance to a very large percent of the employees. That it might at times become irritating, but this condition will exist probably when other things are unsatisfactory with the employee, thus this condition will fluctuate and will draw no complaints unless it exists for some time. Also there were 9208 employees that did not make any comments, showing again that the noise does not bother the average employee. Since these 9208 did not say anything about noise, ^{it} implies that the situation is favorable and that if they had commented on noise it would have been favorable. Thus in this case, we find that 98.85% of the comments would be favorable and 1.15% unfavorable. This clearly points out that the effect of noise as a whole is of minor importance except in a few cases.

In concluding it must be borne in mind that although the study reveals that the effect of noise is negligible, it also points out that there may be certain types of people who are susceptible to noise, and to this type the effect of noise may cause much hardship. The study also tends to point to a certain difference in the

June 2, 1930.

effect of noise on men and women. The noise seems to irritate and make the women nervous while the men merely claim it bothers them; indicating that women will allow the noise to gradually break down their nervous resistance, while to the men it is merely an outward annoyance. Thus noise seems to effect a few individuals in a definite way which will be detrimental to them on the job as well as their physical and mental health.

The employee of this type when on a job where the noise is affecting them should ^{be} changed for their own as well as for the Company's good.

 - 6088-4.

LET-EH



UNIVERSITY OF WISCONSIN - MILWAUKEE

February 28, 1931.

Comments from 10,300 Operating Branch Employees during 1929 and approximately 1,000 distributed in all Branches during 1930.

Payment by check all right. 3 Men 1 Woman 31

"I think this idea of paying the employee by check is another good feature. I didn't like this system at first, but I feel that there is a great advantage in that, for the company, and also for the employee. When I was paid in cash, all the change from a dollar, whether it was a nickel, or 2.00, I used to throw in my pocket, and it disappeared, like all small change does. Now when I take my check to the bank, to have it cashed, I deposit the full amount and only draw out what I need, to live on, and in this way I noticed that the change had accumulated, and it really means something to me now."

"I like the way we get paid and the regularity in which we get it and the new way by check is a whole lot better than the old way."

"I like the idea of being paid by check."

"I like the system the Company has of paying us with checks."

"I like the idea of the Company paying with checks, because if you lose it, or the pickpockets get a hold of it on the street car, you are not out anything."

"I like the idea of being paid with a check as a person is very apt to misplace his pay and if it is cash and he loses it, there is not much chance of his getting it back and I think with a check you can always stop payment on it."

"I like the way of paying by check as I go to the bank to get mine cashed and while I am there I always deposit a few dollars."

"I approve of the check pay system. If a person loses his check, he has some chance of getting it back."

"I think the plan of paying by check was also an improvement made by the Company. I was constantly in fear of being held up on pay day when they paid us in currency, but now I take my check to the bank and have formed a habit of making a deposit in the savings column every week."

"One nice thing this Company did was to start paying us by check. I think it is safer because there used to be so many pickpockets on the street cars, and when we would have currency it was very handy for them to get; by taking the checks, it doesn't do them much good."

"Before we used to get paid with money and now we get paid by check. This is a good idea. One time I lost my check and I got the money all right. If I had been paid with money that time I probably would have lost it for good. I was off for two days that week but ever so I wouldn't want to have lost that money."

"There's one thing. If you lose your check you are more likely to get it back than if you lose your envelope with your pay in it."

Payment by check disadvantage. 3 Men 0 Women

"I think most every one would rather have their pay in cash but it is safer for the Company to have it in checks."

"That's the idea for them to pay us with a check now? They used to pay us in cash. Of course, I don't mind the check much but going over to that bank is terrible sometimes, the way they jam and push. Then you have to stand in line for so long before you get your check cashed."

"The system the Company has of paying in checks is a disadvantage for the employee, but it is a safeguard for the Company. A person loses fifteen or thirty minutes standing in line in the bank."

February 28, 1931.

Comments from 10,800 Operating Branch Employees during 1929 and approximately 1,000 distributed in all Branches during 1930.

Payment by check all right. 9 Men 3 Women

"I think this idea of paying the employee by check is another good feature. I didn't like this system at first, but I feel that there is a great advantage in that, for the company, and also for the employees. When I was paid in cash, all the change from a dollar, whether it was a nickel, or 8.98, I used to throw in my pocket, and it disappeared, like all small change does. Now when I take my check to the bank, to have it cashed, I deposit the full amount and only draw out what I need, to live on, and in this way I noticed that the change had accumulated, and it really means something to me now."

"I like the way we get paid and the regularity in which we get it and the new way by check is a whole lot better than the old way."

"I like the idea of being paid by check."

"I like the system the Company has of paying us with checks."

"I like the idea of the Company paying with checks, because if you lose it, or the pickpockets get a hold of it on the street car, you are not out anything."

"I like the idea of being paid with a check as a person is very apt to misplace his pay and if it is cash and he loses it, there is not much chance of his getting it back and I think with a check you can always stop payment on it."

"I like the way of paying by check as I go to the bank to get mine cashed and while I am there I always deposit a few dollars."

"I approve of the check pay system. If a person loses his check, he has some chance of getting it back."

"I think the plan of paying by check was also an improvement made by the Company. I was constantly in fear of being held up on pay day when they paid us in currency, but now I take my check to the bank and have formed a habit of making a deposit in the savings column every week."

"One nice thing this Company did was to start paying us by check. I think it is safer because there used to be so many pickpockets on the street cars, and when we would have currency it was very handy for them to get; by taking the checks, it doesn't do them much good."

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"The system the Company has of paying in checks is a disadvantage for the employee, but it is a safeguard for the Company. A person loses fifteen or thirty minutes standing in line in the bank."

September 26, 1930.

A REVIEW OF THE SUBSTANCE ANALYSIS
OF PAYMENT

In the 10,300 interviews taken in the Operating Branch during 1929, there were 11,803 comments on the subject of "Payment." This subject^w has expressed more than any other; in fact, there were 2,976 more comments on "Payment" than on its nearest numerical rival. In it's relation to the whole, the number of "Payment" comments represent 14.6% of the total comments on all subjects, with the exception of "Supervision."

Inasmuch as the subject is perhaps more vital to the employee than any other one factor in his industrial situation, the volume of comments is not particularly surprising or phenomenal. On the other hand, when the different phases, as brought out by the employees, are studied one is given an insight into the payment perplexities - as well as the satisfactory situations in the way that the employee sees them.

The Substance Analysis was divided into six sub-classifications to care for the six rather distinct types of comments found under the subject. It may be well to follow those sub-classifications in order as given below in presenting impressions of payment comments.

The sub-classifications are as follows:

- A. Comments on payment of a general nature
- B. Comments directly traceable to ~~or~~ showing a result of the Gang Piece Work System.

- C. Comments directly traceable to or showing a result of the Individual Piece Work System.
- D. Comments on remunerative progress or lack of progress - particularly relative to hourly rate.
- E. Comments involving piece work rates.
- F. Comments relative to the piece work system in general which are not directly traceable to any specific type of piece work.

The first sub-classification contains the thought that found more numerous expression than any other thought on payment. 697 men and 602 women said their earnings were satisfactory. A study of these comments was made to discover what amount of pay they said was satisfactory. 69 men and 89 women named an amount as shown in the following table:

Dollars per Week	15-20	21-25	26-30	31-35	36-40	41-45	46-50	51-up	Total
Men		1	8	12	9	14	12	13	69
Women	1	19	40	22	4	3			89

Although the satisfactory wage for women would appear to center in the \$26-\$30 group, the men voice satisfaction in rather even figures from \$26.00 to \$51.00 and up. These figures cannot be expected to show anything conclusively but they may show indications that will coincide

with other indications to be brought out subsequently. For instance, the even spread of the comments by men might suggest that there are other factors of greater importance in determining a satisfactory wage scale than the wage, itself.

The same group of comments were also studied to determine the percentage, who felt that they were favorably placed in addition to being satisfied with their earnings. It was found that 426 of the 697 men (61%) and 396 of the 602 women (66%) expressed themselves *as satisfied with their placement* in that way. It would seem, then, that there is a strong correlation between "Payment" and "Placement." On first thought it would appear that, in a majority of cases, when earnings are satisfactory, the job is satisfactory also. The reverse is also feasible, however, in that a satisfactory job condition may favorably affect earning power. ?

It might be well to present the other side of the picture at this time, that of the comments on unsatisfactory wage conditions of a general nature. The four sources of this information are shown in the following table.

	Total Comments		Comments available for Study	
	Men	Women	Men	Women
A-1 Income less than it formerly was.	251	128	204	118
A-2 "Wages" are unsatisfactory.	301	76	276	73
A-5 "Wages" do not equal expenses.	33	4	30	4
A-6 Would like better paying job.	<u>139</u>	<u>45</u>	<u>130</u>	<u>41</u>
Total	724	253	640	236

The 876 available comments were examined for stated reasons for the earnings being unsatisfactory, 571 of these did not include any specific reason for the condition but were merely statements of facts ^{or} ~~and~~ of displeasure with the condition. The remaining 305 definitely signified conditions which were spoken of as causative factors. These comments fall into two clearly defined groups; those whose earnings do not provide for their "needs," and those ^{who feel that} whose earnings are not indicative of their individual worthiness.

To present a clear and compact picture of the results of this study, a table of the two groups is shown as follows:

		Source of Information				Total
		A-1	A-2	A-5	A-6	
A. "Necessity" group						
	Men	4	11	4	4	23
1. General living conditions	Women			1	1	2
	M	7	14		1	22
2. Unable to save	W	1	4		1	6
	M	5	3	2		10
3. Indebtedness	W		1		2	3
4. Increased expense (marriage, children, sickness, etc.)	M	5	10	8	11	34
	W	1			3	4
	M	9	42	15	30	96
5. General family expense	W	2	3	3	10	18
	M	3	3		4	10
6. Less than fellow-men	W		1		9	10
	M		1			1
7. Personal pleasure	W					
	M		2		1	3
8. Education pursuits	W		1			1
		Total for Group				243
B. "Worthy" group						
		A-1	A-2	A-5	A-6	Total
1. Length of service (or Xage)	Men	10	5		6	21
	Women	4	1			5
2. Education	M		3		4	7
	W					
3. Potential ability (or experience)	M	2	1	2	8	13
	W				1	1
	M	6	4	2	1	13
4. Industriousness (or accomplishment)	W				2	2
		Total for Group				62

From this study, it appears that, in the employee's mind, economic pressure exercises a major portion of the propelling force in determining

what a satisfactory wage scale is to them. 28% of the total comments examined fell in this group while only 7% of the total expressed individual worthiness. Had each comment included a reason for the condition and had they run in the same proportion to those comments where reasons were expressed, 80% would be because of economic pressure, and 20% of individual worthiness. Although there is no attempt to link up these results with others, it is plausible that this accounts, in some measure, for the even spread of comments on a satisfactory wage scale over a wide range of earnings as shown previously.

493 employees, 418 of whom were men, spoke of their earnings as being "fair," "pretty good," etc. Because of the range of possible meanings of this sort of an expression, it is better to present it as an interesting phenomenon rather than as an indication. The word "fair" is definable in the sense used as either "just" or "possibly good," judging from the tone of the comments the meaning in the majority of cases is "possibly good." It is possible that a number of employees made this statement so as not to leave the impression that they were permanently satisfied with their income - similar in thought to that of a more understanding employee who said that his wages were good but he wouldn't tell his boss that for fear of losing out on raises. The 106 men and 22 women who said their earnings were satisfactory for the time being expressed what most of the "fair wage" group might have been trying to express.

153 men and 230 women stated that Western Electric Company paid

better than other companies. The tendency to make a comparison between this company and others is very noticeable in nearly every subject the employees talk about. It seemingly is their method of determining a standard for good conditions. These employees were not specific in stating, in most instances, whether this company paid more for a type of work or offered a higher wage scale than they had been used to although the tone would suggest the former for men and the latter for women. There were only eight men who spoke of outside concerns paying more for a type of work than this company. Inasmuch as there were almost twice as many men interviewed, the figures show that for every comment made by a man, there were three by women. This seems to indicate the inavailability of such an earnings range elsewhere in the Chicago area for women as found here. It must be borne in mind that these comments are from shop employees where earnings average higher than the office group for women.

The second and third sub-classifications deal with the wage incentive systems practiced at Hawthorne, that of gang piece work and individual piece work respectively. The comments on gang piece work show a decided unfavorable trend while the opposite is true of individual piece work comments.

The outstanding criticism of the gang piece work system by the employees seem to be that individual effort is not compensated or recognized. Compensation, being a concrete thing, was readily expressed by various means. Recognition of the "feeling," that one has been reduced from a "cog in the machine" to a "tooth in the cog," being abstract, was expressed in a lesser degree. An expression that clearly shows this thought is quoted as follows:

"One objection I have with my job, I do not believe gang piece work is fair. One fellow works real hard and another lays down on the job. Of course, their bogeys will show their output, but there are always reasons that are given which sound logical for a lower output. Here, if a fellow was on individual piece work, there would be days he could accomplish a great deal more at times than he could at other times. This would create more interest for the operators as it would give them a target to shoot at. The company I worked for before just considered me as an employee, but here they made you feel as though you were a link in the chain."

There were two groups of employees who expressed a preference for gang piece work to ^{piece} individual piece work and vice versa. A study was made of these comments for reasons why one system was preferable to the other. The result is shown in the following table:

<u>Prefer G.P.W. to I.P.W.</u>	<u>Men</u>	<u>Women</u>
1. To escape I.P.W. rates	14	15
2. Easier work	1	18
3. Fairer system (escape partiality shown in giving out work)	6	2
4. Cooperative spirit among employees	1	3
5. Eliminates ill feeling (caused by others getting good jobs or doing more work)	3	
6. Do not suffer for lost time (from breakdown, etc.)	1	7
7. More even earnings		2
8. No reason given	6	26
Total	32	73

<u>Prefer I.P.W. to G.P.W.</u>	<u>Men</u>	<u>Women</u>
1. Do not have to carry "stallers"	69	36
2. Pay equals work done	64	28
3. Do not have to carry new or inexperienced help	5	2
4. Individual responsibility makes better class of work	1	
5. Do not have to carry non-productive help	1	
6. Know how much is being earned	7	2
7. Causes greater interest	1	1
8. Eliminates ill feeling (between those who do and don't do their share)	1	5
9. High rated men do not effect earnings	1	
10. No reason given	23	23
Total	173	97

The results of this study strongly bear out the afore-mentioned criticism of gang piece work. In fact 96% of those who gave a reason directly or indirectly attributed their disliking for gang piece work to the subjection of individual effort. 50% of those who gave a reason directly or indirectly attributed their dislike for individual piece work to the existing condition of the piece work rates. It is interesting to note that the gang piece work system meets with favor by women more readily than by men. The results shown in the table seem to indicate

that this partiality is due to their not having to work so hard.

The fourth sub-classification, in dealing with comments on remunerative progress, is an evidence that, "Hope springs eternal from the human breast." There were 1767 comments, 1541 or 87% were unfavorable. Years of service played an important role in 1/3 of these comments. The favorite method of expression was to compare the service records and incomes of other employees with theirs and such a condition as less service and more money was looked upon as grossly unfair. Next in numerical importance are the comments of those who feel that they are not rewarded for the work they do. Again the most used method is by comparing their status to others doing similar work. Another group presents an interesting angle in commenting on the infrequency of rate revision. It is difficult to determine the length of period that is considered "too long" to wait for a raise although many employees stated the period they waited as being "too long." The fallacy in any such figures is that they might consider a shorter period than they waited as also being too long to wait. 59 men and 42 women commented more strongly on this point in bringing out the effect the omission of raises had upon them. They spoke of being disappointed and, in some cases, of being discouraged or deprived of incentive. These are also evidences that omission of raises is looked upon as a "silent" expression of dissatisfaction of the employer with the employee's work.

The fifth sub-classification includes all comments made about piece work rates, regardless of the wage incentive system. It can be readily

seen, however, that the majority of such comments concern the rates on individual piece work jobs, unquestionably due to the direct effect they have on employee earnings. 1510 or 89% of the 1713 comments were unfavorable. 1014 or 67% of the unfavorable comments stressed a condition of inequality. 601 men and 211 women, by far the largest group, expressed that "some" of the rates were low. They admitted that part of the rates were satisfactory, even saying that they were too high in some cases but that the rest were too low, either in proportion to the work done or the rates on the other jobs.

The sixth sub-classification includes those comments, common to any piece work system, on the effect that working conditions have upon earnings, together with comments on the piece work system in general. This group of comments do not present any general indications although the study of these comments by departments may be illuminating. Unsteady flow of work as a cause for decreased earnings leads all other employee complaints in this group while "poor material," bad machine conditions, and bad tool conditions follow in the order named.

Having recorded the above indications it must be remembered that attention has been paid almost solely to the problems of remuneration which were prominent in employee expression. One familiar with this field can readily see that the surface has been but scratched and that, in order to get at the root of the trouble, extensive as well as intensive study shall be necessary.

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Place
ment

UNIVERSITY OF WISCONSIN - MILWAUKEE

September 29, 1930.

THE PLACEMENT PROBLEM

The placement of employees has always been a difficult problem in industrial work. This difficulty does not seem unnatural in view of the fact that, at best, the method of determining proper placement was only a trial and error method. Employees were placed on jobs which they said they would like, or on any job that happened to be open at the time. If they made good on the job, they were kept there and, if they failed, they were either tried on some other type of work or were discharged. The employee had no means of making known his satisfaction or dissatisfaction except through direct contact with his immediate supervisor.

More recently, tests have been evolved in an attempt to determine the employee's fitness to do the work before he was started on it. Such tests are undoubtedly of value, and in many cases they give a satisfactory solution to the problem. However, they do not solve those cases wherein the employee is fairly well fitted to perform the given type of work, but, nevertheless, is dissatisfied on the job. It is only human nature that all except the most confident and independent of employees will hesitate to express dissatisfaction to their supervisor. If they are "getting by" with the work and have no definite assurance of another job, the tendency is to hold on to the job, and they realize that any intimation to the supervisor of dissatisfaction will lessen their chances of keeping it.

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Similarly, when the great bulk of employees are hired, their principal objective is to get a job, and the tendency is for them to express a like for any job that is available. Then, after getting the job, the same feeling is prevalent as was cited above, and the employee had no satisfactory manner of expressing his thought as to whether the job was meeting with his approval and requirements. These factors have combined to make the problem of placement and the shifting of employees between jobs a most difficult one.

A study of that part of the material taken from the interviews of Operating Branch employees during 1929 classified under the subject "Placement and Transfer" gives some indications that the Interviewing Program may aid materially in solving both the employees' and the Company's problem on the subject. In that material, we have statements from the employees themselves, made not to any supervisor but to an impartial third person who has given assurance that all material will be treated confidentially, stating the feeling of the employee about the job, and in many cases, assigning some factor as the cause of that feeling in the mind of the employee. It seems that a study of this material may give the most satisfactory answer yet offered for the problem, as that answer may be given in the language of the employee, based upon employee thought.

The material classified under the subject "Placement and Transfer" does not lend itself so readily to definite rules of analysis as did the material under the other subjects considered. This is especially true of that group of comments analyzed under the subject "Job Placement."

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There seemed to be no rules to follow, nor anything to which the employees' comments on this thought could be pinned. Job Placement, in the mind of the employee, is not a tangible thing, but rather a variant that changes from individual to individual. One employee speaks about liking his job when he means that he enjoys doing the work he is engaged in; another when he means that his surroundings on the job are pleasant; another, when he means that the job pays him a sufficient return to enable him to live in comfort; and still another, when he means that it is the only job he knows how to do, and he must like it. Thus, the comments run, on and on, in almost innumerable ways, setting out the things about the job that are pleasing to the employee and giving them as reasons for satisfaction on the job. The same is true with those who express dissatisfaction. In very few cases is that dissatisfaction connected by the employee to any inability to perform the work, but always to some resultant unpleasantness.

Many of the employees' comments showing satisfaction or dissatisfaction with the job are so worded that it is almost impossible to definitely determine the factor to which they attribute that satisfaction or dissatisfaction. However, it is true that where satisfaction with the job is expressed, comments from the same interview on other subjects are generally favorable also. Likewise, where a dislike for the job is stated, there are also comments of unfavorable nature from that same employee on various other features of the job.

From a study of the substance analysis of these comments, it appears that the 10,300 employees interviewed expressed their satisfaction with the job in 64 different ways. In other words, these em-

ployees assigned 64 reasons for liking or being satisfied with their jobs. It is true that some of these 64 reasons had to do with the type of work, but by far the greater number of comments assigned some reason not directly connected with the type of work performed. The thoughts that came to the employees' mind when thinking of their satisfaction on the job were not thoughts of their adaptability or fitness to do the work, but were thought of their liking for the job, because of the wages received, because of the future possibilities offered, because they were able to make the money, because the job was not dirty, or because of one or more of numerous other reasons peculiar to individuals or types of individuals.

Similarly, the unfavorable comments are grouped under 48 different thoughts as to why the employees say they dislike their job. Here again, the reasons given by the employees are largely concerning individual factors of dislike, and do not bear directly on unfitness to do the work.

Should it be deemed desirable to make a study of the employee comments on placement from the angle of adaptability or inadaptability to perform the work, that study must necessarily be made from these comments wherein a reason is assigned for liking or disliking the job. Such comments offer a possible means of determining what the employee himself thinks about the subject "Placement", and present some fairly accurate data as to the factors that enter into the placement problem from the employee's standpoint. All previous theories on the subject have been drawn from the Company or employer's standpoint, and have

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been based upon pure assumptions as to employee thought. Such theories, naturally, have been neither complete nor accurate, and have aided but little in the understanding of the subject. However, with the Interviewing Program rapidly making available material with which we may be able to complete the picture by filling in the employees' viewpoint, it does not seem improbable that future understanding of the subject will be greatly enhanced.

Thus it would seem that the most beneficial method of procedure would be to classify all material wherein the employee expresses any satisfaction or dissatisfaction with his job or work, under the subject of placement, and continue to study that material for possible indications that will lead to a solution of the employees' placement problem.

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UNIVERSITY OF WISCONSIN - MILWAUKEE

SUMMARY OF CONCLUSIONS DRAWN FROM
A STUDY OF 1,213 COMMENTS ON SAFETY AND HEALTH
TAKEN FROM 8,983 (1930) EMPLOYEE INTERVIEWS

An analysis of the 1930 Safety and Health Comments reveals a number of interesting facts, the most striking of which is the decrease in the number of comments per interview.

Using the 1929 Operating Department vs the 1930 Operating Department comments as a basis of comparison, we find a good illustration of the decrease in the comments received per interview.

		<u>Men</u>	<u>Women</u>	<u>Total</u>
Number of Favorable Safety and Health Comments per M Interviews	1929	76	76	152
	1930	39	35	74
	% Decrease 1930	51.3%	53.9%	51.3%
Number of Unfavorable Safety and Health Comments per M Interviews	1929	281	370	651
	1930	213	170	383
	% Decrease 1930	24%	54%	41.4%
Number of all Safety and Health Comments per M Interviews	1929	357	446	804
	1930	252	205	457
	% Decrease 1930	29.1%	54%	43%

We find this subject to be one for which a large number of employees have expressed themselves, although there is a very noticeable decrease in the quantity of comments received as well as a larger

decrease in the men's favorable than in the unfavorable. In order to illustrate these decreases in a different way we have made a comparison between 1929 and 1930 using percentages. These clearly show the decreased mentioned. While women did not talk as much about Safety and Health their ratio of favorable to unfavorable comments remains unchanged. The decrease of men's favorable over unfavorable comments indicates a trend toward the unfavorable but it cannot be accounted for and apparently is not due to anything associated with Safety and Health, as this same condition is found in other subjects.

1929 1930

20.3%	16.2%	of all comments received on Safety and Health were favorable
79.7%	83.8%	" " " " " " " " " " " unfavorable
36.2%	25.2%	" " men interviewed commented on Safety and Health
44.7%	80.6%	" " Women " " " " " " " " " "
22.4%	15.6%	of men comments received on Safety and Health were favorable
17.1%	17.1%	of women " " " " " " " " " "
77.6%	84.4%	of men comments received on Safety and Health were unfavorable
82.9%	88.9%	" Women " " " " " " " " " "

An analysis of the subject matter discussed in the unfavorable comments and a comparison between 1929 and 1930 discloses a decided decrease in some classes while others remain practically unchanged. Taking the Operating Department Unfavorable Comments for further consideration we have divided the subject matter into six relevant classes as in the analysis of the 1929 comments.

Occupational			Equipment			Tools & Mchs.			Supervision			Plant			Miscellaneous		
Com.			Com.			Com.			Com.			Com.			Com.		
No.	M	F	No.	M	F	No.	M	F	No.	M	F	No.	M	F	No.	M	F
1	28	16	11	8	1	3	13	5	6	7	3	7	19	5	2	6	10
4	8	4	20	1	17	8	4	0	15	0	1	12	15	10	9	2	0
5	2	0	26	14	32	34	5	0	40	6	1	13	60	31	35	0	0
10	1	5	27	1	0	60	1	0	46	1	0	14	18	2	37	0	0
16	12	16	31	1	3	62	0	0	56	0	0	18	18	6	43	0	0
17	0	1	38	5	1	81	2	1	59	1	0	23	12	3	45	5	0
19	0	0	48	4	0	92	0	0	69	0	0	25	18	1	47	4	5
21	4	9	49	1	1	107	1	0	72	5	0	32	0	0	52	0	2
22	12	3	50	0	0				74	0	1	33	2	1	53	1	0
24	8	3	57	0	0				76	2	0	41	3	1	54	1	0
28	10	2	58	1	0				87	1	0	42	0	0	64	0	0
29	11	4	61	4	3				88	3	1	63	0	0	65	0	0
30	7	4	66	2	0				97	0	1	77	1	1	67	0	0
36	0	0	79	0	0				98	0	0	93	0	0	68	0	0
39	3	0	94	0	0				100	0	0	105	0	0	70	0	1
44	0	0	95	0	0				111	1	0	106	0	0	73	0	0
51	0	2	96	1	0							109	2	0	75	0	0
55	0	3	114	0	0							112	0	0	78	1	0
71	0	0													82	0	0
80	1	0													84	0	0
83	1	6													85	2	0
90	1	2													86	0	0
91	1	0													89	0	0
															99	1	1
															101	0	0
															102	0	1
															103	1	0
															104	0	2
															108	1	0
															110	0	0
															113	0	0
															115	0	0
Total (1930)			110	88		45	58		26	6		27	8		168	61	
Comments																	
Comments per M																	
Interviews			58.7	58.9		22.9	41.6		13.8	4.3		14.4	5.7		90.2	43.8	
Total (1929)																	
Comments			758	476		266	333		79	9		104	47		637	361	
Comments per M																	
Interviews			108.5	136.		39.1	95.1		11.6	2.6		15.2	13.4		93.7	103.1	

4.

1930

Total Comments	399 Men	237 Women	636 Total
Per M Interviews	212.9	170.3	194.8

1929

Total Comments	1911 Men	1297 Women	3208 Total
Per M Interviews	281.0	370.6	311.4

It will be noted that the classifications of "Occupational" and "Equipment" and the women's comments of "Plant" have decreased approximately 50% while the rest of the classifications show little if any major changes. The comments under "Occupational" Classification showing the major decreases were those regarding smoke, fumes, etc., hurting eyes and lungs or causing illness, night hours, bodily soreness, job unhealthy and materials being injurious. Under "Equipment" classification the large decreases are accounted for under those comments relating to goggles while hairnet comments also show a fair decrease. Women's comments under "Plant" classification decreased under those comments relating to poor lighting, crowded aisles, and locker and washroom congestion, also type or condition of floors as hazardous.

No definite reason can be assigned for these decreases but several probabilities must be assumed. These are as follows: (1) The 1929 interviews were taken entirely in the Operating Department and all interviews were analyzed. The 1930 interviews covered the entire plant and it is possible that only a few interviews were taken in 1930 in those departments from which we received numerous interviews and

5.

comments in 1929. This may account for a heavy drop off in certain comments which are peculiar to specific departments. Comments number 1 and number 4 are examples of this condition. During 1929, 269 employees were interviewed in Department 7397 (Rubber Job) and from these we received eleven comments relating to comment number 1 (smoke and fumes and dust hurting eyes and lungs) and nine comments relating to comment number 4 (smoke and fumes and dust cause illness). In 1930 only 123 interviews were taken in this department of which only approximately one-half were analyzed and but three comments were received regarding dust hurting eyes and lungs. (2) Another reason to be considered is that the hazardous condition may have been remedied but this condition was not mentioned from the Safety and Health standpoint. (3) It must be remembered, too, that in 1929 conditions in many departments were crowded beyond the bounds of Safety while in 1930 this condition was changed for the better to some extent. This should naturally reflect favorably in our comments, provided it was mentioned at all.

It is interesting to note, also, the relative importance of the various (Operating Department) comments in each year. Listed below are twenty subjects having the most comments arranged in sequence of the number of comments received.

1929

<u>Rank by Volume</u>	<u>Subject</u>	<u>Com. No.</u>	<u>No. Comments Received</u>
1	Goggles objectionable	26	368
2	Ventilation and temperature	13	310
3	Smoke and fumes cause illness	4	241
4	Pans and trucks in aisles	12	189
5	Smoke and fumes hurts eyes, etc.	1	183
6	Improper light - eyestrain	7	162

<u>Rank by</u> <u>Volume</u>	<u>Subject</u>	<u>Comment</u> <u>Number</u>	<u>Number Comments</u> <u>Received</u>
7	Work operation causes bodily soreness	16	149
8	Materials injurious	30	106
9	Night hours undermine health	10	102
10	Lockers and washroom hazardous	18	98
11	Close work causes eyestrain	24	89
12	Clock congestion dangerous	6	87
13	Job unhealthy - dangerous	29	84
14	Floors hazardous	25	82
15	Lack of Work Space	23	70
16	Hairnets and headbands objectionable	20	69
17	Have too heavy lifting	21	67
18	High speed - Bogey	2	66
19	Locker and washroom congestion	14	52
20	Conveying and lifting work	11	49

1930

<u>Rank by</u> <u>Volume</u>	<u>Subject</u>	<u>Comment</u> <u>Number</u>	<u>Number Comments</u> <u>Received</u>
1	Ventilation and temperature	13	91
2	Goggles objectionable	26	46
3	Smoke and fumes hurt eyes and lungs	1	44
4	Work causes bodily soreness	16	38
5	Pans and trucks in aisles	12	25
6	Improper light - eyestrain	7	24
7	Lockers and washroom hazardous	18	24
8	Locker and washroom congestion	14	20
9	Floors hazardous	25	19
10	Hairnets and headbands objectionable	20	18
11	Machines and equipment not guarded	3	13
12	High speed - Bogey	2	13
13	Chances of burns	22	13
14	Lack of working space	23	13
15	Job is unhealthy	29	13
16	Too heavy lifting	21	13
17	Close work - eyestrain	24	13
18	Chances of injuries on job	28	12
19	Smoke and fumes cause illness	4	12
20	Materials injurious	30	11

It will be noted there is little change in the sequence of the first six subjects and the majority of the 1929 subjects appear in 1930 also. While it is obvious that the number of comments per interview in

1930 is considerably less on some of the subjects it is evident from the amount of comments received in relation to the balance of comments on this subject that they are still a factor to be reckoned with.

During 1930, interviews were also taken in other branches besides the Operating Branch. Shown below is an analysis of the comments received from all branches, together with the average number of comments per thousand interviews.

Branch	Interviews Taken			Comments Received					
	M	N	Total	Favorable			Unfavorable		
				M	N	Total	M	N	Total
<u>Accounting</u>	132	268	400	2	1	3	5	61	66
Comments per M Interviews				15.2	3.7	7.5	37.8	227.6	165.
<u>Public Relations Branch</u>									
	5	5	10	0	0	0	0	0	0
Comments per M Interviews				0	0	0	0	0	0
<u>Industrial Relations Branch</u>									
	64	52	116	3	0	3	21	1	22
Comments per M Interviews				46.8	0	25.8	328.1	19.2	189.6
<u>Production</u>	368	235	603	8	2	10	33	16	49
Comments per M Interviews				22.3	8.5	16.8	92.2	68.1	82.6
<u>Operating</u>	1874	1391	3265	74	49	123	399	237	636
Comments per M Interviews				39.5	35.2	37.6	212.9	170.3	194.8
<u>Inspection</u>	281	86	367	7	3	10	14	13	27
Comments per M Interviews				24.9	3.49	27.2	49.8	151.1	73.5
<u>Technical</u>	694	48	742	29	0	29	157	3	160
Comments per M Interviews				41.8	0	39.4	226.2	62.5	215.6
<u>Specialty Products</u>									
	442	48	490	5	1	6	56	13	69
Comments per M Interviews				11.3	20.8	12.8	126.7	27.0	140.8
<u>Total</u>	<u>3880</u>	<u>2133</u>	<u>6013</u>	<u>126</u>	<u>54</u>	<u>184</u>	<u>685</u>	<u>344</u>	<u>1027</u>
Plant Comments per M Interviews				33.2	26.2	30.7	177.9	161.3	171.9

It will be noted that several branches have higher individual averages (Men or Women) than the Operating Branch. One particularly interesting figure is the Accounting Branch, unfavorable, women's average - 227.6 per thousand interviews. An investigation of the cause of this high average discloses that this is due to numerous complaints chiefly against bogey causing illness, ventilation and temperatures causing illness (greatest majority), overtime undermining health, job hard on nerves, floor vibration getting on nerves, and improper lighting. They originated almost entirely in buildings 26-6, 32-5, and 56-1-2-3. This would indicate that these subjects were of major importance to the employees of the Accounting Branch in these buildings and the fact that these comments originated almost 100% in these buildings would also substantiate the authenticity of these complaints.

Considering some aspects of the decrease of favorable comments in 1930 over 1929 as illustrated in the third paragraph on page one, we find the detailed analysis of these comments below showing the relative number of comments per thousand interviews and net difference between 1929 and 1930.

Comment No.							Comments per M 1930 + or -		
	M	W	Total	M	W	Total	M	W	Average
1 No. Com. rec'd.	24	3	27	4	1	5			
per M Int.	3.5	.8	2.6	2.1	.7	1.5	-1.4	-.1	-1.1
2	141	28	169	20	4	24			
	20.7	8.	16.4	10.6	2.8	7.4	-10.1	-5.8	-9.
3	8	1	9	0	0	0			
	1.2	.2	.8	0	0	0	-1.2	-.2	-.8
4	2	2	4	0	0	0			
	.2	.5	.8	0	0	0	-.2	-.5	-.3

Comment Number	M	W	Total	M	W	Total	Comments per M 1930 + or -		
							M	W	Average
5	21	0	21	1	1	2			
	3.	0	2.	.5	.7	.6	-2.5	+7	-1.4
6	61	13	74	5	5	10			
	8.9	3.7	7.1	2.6	3.6	3.	-5.3	-.1	-4.1
7	24	35	59	10	7	17			
	3.3	10.	5.7	5.3	5.	5.2	+1.8	-5.	-.3
8	2	0	2	0	0	0			
	.2	0	.2	0	0	0	-.2	0	-.2
9	33	72	105	14	11	25			
	4.3	20.6	10.2	7.6	7.9	7.6	+2.3	-12.7	-2.6
10	5	1	6	3	4	7			
	.7	.2	.6	1.6	2.3	2.1	+9	+2.6	+1.5
11	16	5	21	3	2	5			
	2.3	1.4	2.0	1.6	1.4	1.5	-.7	-0	-.5
12	2	2	4	0	0	0			
	.2	.3	.3	0	0	0	-.2	-.5	-.3
13	66	8	74	5	1	6			
	9.6	2.3	7.1	2.6	.7	1.8	-7.	-1.6	-5.3
14	10	4	14	1	1	2			
	1.4	1.1	1.3	.5	.7	.6	-.9	-.4	-.7
15	1	18	19	0	4	4			
	.1	5.1	1.8	0	2.3	1.2	-.1	-2.3	-.6
16	1	21	22	2	1	3			
	.1	6.	2.1	.1	.7	.9	-0	-5.3	-1.2
17	3	0	3	0	1	1			
	.4	0	.3	0	.7	.3	-.4	+7	.0
18	0	4	4	0	1	1			
	.0	1.1	.3	0	.7	.3	0	-.4	0
19	3	5	8	0	1	1			
	.4	1.4	.7	0	.7	.3	-.4	-.7	-.4
20	5	1	6	0	0	0			
	.7	.2	.5	0	0	0	-.7	-.2	-.3
21	3	0	3	0	0	0			
	.4	0	.3	0	0	0	-.4	0	-.3
22	1	0	1	0	0	0			
	.1	0	.1	0	0	0	-.1	0	-.1
23	4	6	10	1	1	2			
	.6	1.7	1.	.5	.7	.6	-.1	-1.	-.4
24	35	1	34	2	0	2			
	4.3	.2	3.5	.1	0	.6	-4.7	-.2	-2.7
25	4	4	8	0	2	2			
	.5	1.1	.3	0	1.4	.6	-.6	+3	-.2
26	0	2	2	0	0	0			
	.0	.5	.2	0	0	0	0	-.5	-.2
27	0	4	4	0	0	0			
	.0	1.1	.3	0	0	0	0	-1.1	-.3
28	1	1	2	0	0	0			
	.1	.2	.2	0	0	0	-.1	-.2	-.2

Comment Number	M	W	Total	M	W	Total	Comments per M 1930 \pm or -		
							M	W	Average
29	2	0	2	1	1	2			
	.2	0	.2	.5	.7	.6	+3.3	+3.7	+3.4
30	1	0	1	0	0	0			
	.1	0	.1	0	0	0	-.1	0	-.1
31	1	0	1	0	0	0			
	.1	0	.1	0	0	0	-.1	0	-.1
32	1	1	2	1	0	1			
	.1	.2	.2	.5	0	.5	+3.4	-.2	+3.1
33	41	14	55	1	0	1			
	6.0	4.0	5.5	.5	0	.5	-5.5	-4.0	-5.0
34	0	0	0	-	0	0			
<hr/>									
Number Interviews Taken	6800	3300	10300	1874	1391	3265			
" Comments received	520	269	789	74	49	123			
Comments per M. Int.	76.5	76.8	76.6	39.5	35.	37.6	-37.	-41.8	-39.

Several significant decreases are apparent in the 1930 column and as indicated before the greater majority by far of all comments show some decreases. Just why this condition exists is, of course, impossible to state definitely as no clues present themselves in the comments, however, the trends as represented by the varying declines are interesting. One comment which gives a plausible reason for the number of unfavorable comments received reads as follows:

"Most of the complaints about equipment came from men who have been brought up with the Western Electric and who don't realize how many advantages they enjoy. Of course the men that come here from the outside realize the many advantages which this company offers as far as equipment, sanitation and safety is concerned."

It is true that we are prone to take many of the improvements and advantages as a matter of course due to being in daily contact with them and hence fail to give due credit or express appreciation for them.

The wide spread of comments initiated in 1929 continued almost without exception in 1930 with one additional favorable classification and eleven unfavorable. Many seemingly insignificant items appear as important

to the employees. This, no doubt, is due to the continued drive on Safety, and, naturally the employees overlook no possible hazard. The wide spread of unfavorable comments is not surprising nor is it alarming as a study of accidents show us that rarely do we find two accidents exactly alike. The cause of accidents are multifarious and complex and it follows naturally that the employees see a large variety of accident and health hazards.

The subject of temperature and ventilation or the lack of it, together with the subject of smoke, fumes, dust, etc., being considered as a health hazard are two of the leading unfavorable comments in 1929 and 1930. One of the most common complaints in this connection is that draughts cause colds or physical discomfort. By draughts we assume an air current which causes discomfort. This same air current may be invigorating to one individual and decidedly objectionable to another. The reason for this lies in the individual's relative rate of the cooling of the skin. Some individuals naturally "cool off" quicker than others and there may be a difference of several degrees in the vascular temperature of the various parts of the body which is manifested by "cold feet" or "cold hands" etc. Our present heating and ventilating system in general used throughout the plant functions pretty well during the summer, but from comments received it is evident that it leaves much to be desired during the cold weather. The essential features in determining the suitability of air are temperature, humidity and motion of the air. Of these, temperature is possibly the most important single feature in ventilation. In addition to the individual differences cited

above, we find that the kind of work performed by individuals is a big factor in his reactions to the room temperature. A difference of 8° to 10° may be tolerated with comfort by those who are doing real active work over those who are engaged in sedentary work. Due to the nature of the work it is often impossible to segregate the active and sedentary workers and naturally some conflict is to be expected. The only method of admitting fresh air in the winter is by opening windows but this method is severely criticized by the employees as being one of the principal causes of contracting colds, pneumonia, rheumatism, stiff neck, etc. Just what measures we can take to remedy the conditions complained of is difficult to say. The employees' comments are merely complaints of conditions they have to work under but do not give us any constructive ideas as to how to remedy the drafts and still maintain an adequate supply of fresh air. The continued volume of these complaints indicates that this is still one of the foremost subjects in the employees' minds and will warrant our continued effort to alleviate the numerous complaints received on this subject.

Safety may be described as the exercise of caution with respect to forestalling of injury to body or health. The attitude of a safety conscious employee toward possible hazards is one of extreme caution until the stimulating object has been changed, or until he has learned through experience that the object is not as hazardous as he had first imagined it to be. In any event, it is the employee's attitude which determines whether or not a given situation is hazardous. The employee's attitude in turn is largely determined by how well his supervisor has

sold him on the general doctrine of Safety and his subsequent monitions. In order to keep alive the Safety attitude we cannot overlook the group of miscellaneous comments on which the number of comments received is comparatively few. Only by recognizing these complaints and investigating them as potential accident hazards are we able to foster and keep alive this safety attitude.

June 23, 1932.

SV


[Redacted] - 5088-4.

SAFETY AND HEALTH

The following account was received from one of the investigations of the safety and health division.

For some time the question of fumes in the Enameled Wire Department had been a source of trouble. For some reason no solution had been found for the elimination of the fumes in this department. The employees' comments on this condition claimed that they were compelled to breathe these fumes all day long and that some way should be found to carry these away instead of allowing them to come upward into their faces.

Acting on this theory it was found that the ventilating system was so constructed that the movement of the air was upward, thus forcing the fumes upwards into the face of the employee. A slight change in the ventilating system whereby the air movement was downward, forced the fumes down and away from the faces of the employees, eliminating the necessity of the employee breathing the fumes.

This instance tends to show the possibilities ^{for which} ~~of~~ employees' comments on working conditions ~~in which they~~ may be used to help solve the problems of unsatisfactory conditions. The employee who is on the job day after day is in many cases in a position to give valuable suggestions on improving the conditions surrounding the job, which will be of vast assistance to an investigator.

August 29, 1930.

SUMMARY OF CONCLUSIONS DRAWN FROM A STUDY OF
4029 COMMENTS ON SAFETY AND HEALTH TAKEN FROM
10,300 OPERATING BRANCH (1929) EMPLOYEES' INTERVIEWS

Safety and Health has been one of the subjects in which this company has taken a special interest, and we have always taken justifiable pride in our low accident rate and the good showing made in this field by our Company in competition with other manufacturers. Apparently the employees have also caught the spirit of Safety as revealed by the large number of employees commenting on subject. However, a casual examination of the substance analysis on this subject is apt to be somewhat disturbing to the reader due to the unfavorable tone of this report. It is difficult to reconcile the fact that a majority of employee comments on this subject are unfavorable in view of our low accident rate and the ceaseless campaign carried on by the Company in this direction.

In order to assist us in arriving at some conclusions for the generally unfavorable tone on this subject, the unfavorable comments are classified below into six different subjects, i.e. Occupational, Equipment, Tools and Machines, Supervision, Plant, and Miscellaneous.

Under the subject of Occupational complaints we have included those which are peculiar to the job itself, such as fumes, burns, heavy lifting, etc. Complaints regarding Equipment include such items as goggles, chairs, benches, overalls, etc. Tools and

Machines are self-explanatory. Under Supervision we have classified such items which it is felt should be normally corrected by supervisory instruction. They include running, instruction of new operators, preaching safety, and similar subjects falling into this category. Such subjects as poor light, lack of working space, crowded lockers, etc. have been incorporated under Plant complaints. All other complaints which could not be included under one of these five headings have been placed under Miscellaneous.

The following is a distribution of the unfavorable comments taken from the substance analysis into the subjects mentioned above.

In associating the assigned reasons in the substance analysis with the comment number for the Occupational group it will be noted that comments No. 1 and No. 4, which deal with the smoke and fumes complaints, are the most numerous. A large portion of these complaints emanated from Department 6315, Enameled Wire Department. Other outstanding complaints in so far as quantity is concerned are No. 10, No. 16, No. 21, No. 24, No. 29, and No. 30. Briefly, these deal with night work, bodily soreness, heavy lifting, close work, unhealthy job and injurious material, respectively. Just what measures we can take to alleviate these conditions is hard to say. The operators themselves do not give any ideas in this connection, but merely state these conditions to be objectionable. No doubt, some relief could be given on a number of these complaints either in part or completely after an investigation of the causes of these complaints has been made. The volume of these complaints alone would indicate that these are complaints of no small dimensions and are of interest to many employees. Some of these and some of the remaining complaints in this group may be classed as improper placement of employees as they may be susceptible to the conditions mentioned in their complaints. It is interesting to note that there is a spread of 23 complaints in this classification - the second largest on this subject. This would indicate that operators are cognizant of many conditions which normally are overlooked when considering safety and

health hazards.

The classification of Equipment likewise bears a number of outstanding complaints, such as No. 20, No. 11 and No. 26. These refer to hairnets or headbands, conveying work, and glasses. With the recent adoption of a new type of glasses, lighter in weight than those in use during the greater part of 1929, many of the complaints on glasses have no doubt been rectified, although a number objected to wearing any kind of glasses due to the fact that they were subjected to severe head-aches or nervousness from wearing them. The hairnets or headbands were another source of annoyance to the girls. Their chief complaints were lack of comfort, no need for them, and appearance. One operator remarked: "It makes us look like a lot of little old women with our hair skinned back tight." The complaints regarding dangerous conditions regarding lifting and conveying material deal chiefly with the loading of boxes, skids and trucks and the danger associated with the use of this means of conveyance. Other complaints mention the desirability of having cranes for use in lifting heavy objects. The remainder of complaints suggest various equipment or criticize present equipment. There are numerous conditions complained of which will bear investigation to determine the extent of the hazards mentioned.

Tools and Machines classification has the least number of comments and spread of comments. The original trend of safety was

toward making machines safer in view of the heavy toll of crippled or injured hands of machine operators in years past. It was only logical, therefore, that safety precautions should begin where the injuries were the most numerous. It is gratifying to note the large number of favorable comments in this connection, 144 male and 28 female. This is due, no doubt, to our concentrated efforts in this direction, but we cannot overlook the fact that there are some employees who cite instances where they are still exposed to hazardous conditions. Some of these may be due to the rush of business in 1929 when it was necessary to maintain high production levels resulting in the use of machines and tools which would normally be considered unfit for use.

The unfavorable comments classified to Supervision present a varied picture of conditions. Some of these are probably due to the large number of employees handled by each supervisor at the time these interviews were taken and it was very difficult for them to watch for these occurrences. The outstanding complaint is No. 6 - "Clock congestion dangerous." In these comments the employees complain about running to the clock, jostling, pushing, getting stepped on or knocked down. It is natural to assume that a condition of this kind is more likely where we find a large number of operators punching on one clock, but we do find employees who mention conditions just the opposite of this, favorable comment No. 24, "Everybody falling in line in orderly manner to punch clock forestalls accidents." Another interesting unfavorable comment is No. 33 - "Foremen preach safety

but adopt a very harsh attitude towards operators who have and report accidents - causes operators to treat minor injuries themselves or not report them." This may be due to the foreman being overzealous on the subject of safety, but it apparently has a detrimental effect on the operators as is evidenced by the results cited in the comment.

Plant conditions reflect a large number of unfavorable conditions - some of which may be due to crowded working space during 1929. The No. 7 comment: "Improper light causes eyestrain - accident hazard" indicates that this is one of major complaints with a total of 162 comments. Also comment No. 12: "Pans, stock, trucks, scrap, etc. in aisle a fire, accident, and health hazard" is one of the major complaints registered with a total of 189 comments. This, no doubt, is directly due to crowded quarters in 1929. The second largest complaint under the entire subject of safety is incorporated in comment No. 15: "Ventilation and temperature cause illness." The subject of ventilation with its attendant cases of colds and other sickness resulting in discomfiture and lost time is one, which, by the number of comments, makes itself obvious to everyone that it is a project vital to many employees and the Company as well. It is apparent that our present system of ventilation by opening windows is not handled correctly or is wrong in principle, as there are many who complain about cold drafts resulting from this practice which are not conducive to healthful or efficient working

conditions. The whole subject of ventilation is one which will warrant a thorough investigation for corrective measures to overcome the numerous faults cited. There are many other unfavorable conditions brought out in the remaining comments, but we do not believe it is necessary to discuss them here as they are self-explanatory.

The subject of Miscellaneous contains a large assortment of complaints which could not be fitted into the other classifications. The only outstanding comment is No. 3, "High speed to make bogey or piece work rate causes injury or illness - take chances," with 25 male and 41 female comments. This comment could have been classified under Supervision just as well as in this group. It is an interesting side light on our piece work and bogey systems. Whether or not a lower bogey or piece work rate would rectify a condition of this kind is problematical. The remaining comments in this group present many illustrations of conditions which the majority of us would not see as an accident or health hazard. There are also a number of suggestions incorporated in these comments which will merit consideration. Comment No. 64: "Should have a departmental safety committee composed of operators to investigate accident hazards and recommend changes," may contain the answer to uncovering many hazards previously overlooked, as operators being in closer contact to the work naturally discover more hazards than those who are only superficially associated with a job.

Perusing the favorable comments in this classification, we find a considerable variety of gratifying comments, some of which are in direct contrast to those in the unfavorable group. They represent a diversity of comments pertinent to this subject and many of them indicate that the employees are sold on the idea of safety. Comments No. 6: "Safety and Health policies and practices, in general, O.K.," and No. 24: "Safety First Program a good thing for employees," are good illustrations of this fact. Comment No. 33: "Eastern Electric more advanced than other companies in Safety and Health practices," with a total of 55 operators commenting, is also a pleasing bit of evidence that some progress has been made in the right direction.

In looking at this report as a whole, we are forcefully impressed with the fact that our work in this field has just begun. Good progress has been made in some directions but there still are many projects awaiting our efforts. While the overall picture presented in the comments does have an unfavorable slant, we feel that this is not so important as the fact that the employees recognized hazardous conditions and commented on them. A great deal of our progress thus far can be attributed to the interest displayed by the individuals on the job and it is logical to assume that many more constructive criticisms will follow from this source. It is also worthy of note that 44% of the women commented on this subject and 36% of the men. Selling safety to the employees is largely the

supervisor's job, but once an employee has been sold on the idea and the accruing benefits, his enthusiasm for this doctrine will manifest itself in practicing it and spreading the creed among his fellow workers. Apparently our employees, taken as a whole, are "safety conscious", and in order to keep this spirit alive we should not ignore the complaints and suggestions registered in the comments.

W. K. Krine
[Redacted]

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UNIVERSITY OF WISCONSIN - MILWAUKEE

SUMMARY OF CONCLUSIONS DRAWN FROM A STUDY OF
5583 COMMENTS ON THRIFT TAKEN FROM 9500
OF RATING BRANCH (1929) EMPLOYEES'
INTERVIEWS

The substance analysis of employees' comments regarding the Company Thrift and Savings Plans reveals a number of interesting and sometimes amusing facts.

About the first thing we notice is the large amount of comments made which is 5583 from 9500 interviews. Considering the fact that these comments are spontaneous, this would indicate that our employees are thrift conscious. About 96% of the comments received were favorable, from which we may conclude that the employees who made comments are well sold in our plans.

Some difficulty was experienced in properly classifying the comments under the various plans as they merely spoke about the "savings plans". If it was not obvious just which plan the employee had in mind or if other points in the comment did not assist us in properly classifying the comment, it was included under the "General" classification.

As may be presumed, most employees' comments were on the A. T. & T. Stock Purchase Plan, (3737) about 69% to be exact. The stock market frenzy of last year with its accompanying rise in A. T. & T. Stock may have had a certain influence on the number of employees commenting on the plan.

The reasons for the popularity of the A. T. & T. Stock plan may be found under the various comments listed in the analysis, chief among which are the weekly deduction arrangement, also that it is a good way to save money and that the stock has been a good investment. It is interesting to note that 47 comments were to the effect that the plan is a good means of providing for "old age" or a "rainy day". It is also interesting to note that there were 77 comments on the fact that our plan is more liberal or that other companies did not have a plan such as ours. It is logical to assume from this that this reflects a favorable attitude toward the Company. In this connection, 214 comments stated that the plan was generous or that they thought it was "nice" of the Company to give the employees an opportunity to subscribe for stock under the plan. In this same vein we find 40 comments expressing the idea that the Company's interest in employees is expressed through the plan.

The outstanding reason set forth as to why they like the Stock Purchase plan is the weekly pay deduction feature. Apparently this feature appeals to the feminine portion of our force much more strongly than the male in view of the fact that only 343 men commented on it, whereas 510 women expressed a definite liking for this arrangement. This represents 13% of the female employees interviewed whereas

the male percentage is only 14. The feminine weakness for the time payment plan as is in vogue in our present economic system undoubtedly accounts for this expressed liking for a similar arrangement applied to savings.

In casting about for constructive criticisms of the Stock Purchase plan we find two principal complaints, one of which is that certain employees feel they can carry more A. T. & T. than the present quota provides for, and the second is that the interval required to pay up the stock is too long. There were 54 comments on the first complaint and 32 on the latter. Undoubtedly there are points of merit in these suggestions. The majority of the comments on the first mentioned above are rather vague in that they merely state, - "I am buying all the stock I am allowed but I wish I could have more." No definite statement is made as to what means should be provided to establish a limit. One employee comments, "The A. T. & T. Stock Plan is great. I am taking my limit but they should not have a limit on the amount of shares one can buy." Still another comment states that we should have an equal quota for all - not to be determined by salary. It is felt, however, that the following comment sheds more light as to why they complain about limitation of quota, "I think it is wonderful the way they let us buy stock, only they should let us buy more. I don't know anything about the other thrift plans as they were never explained to me." While this comment is rather unusual, it is felt that if the other plans were carefully explained to each individual, it would alleviate this condition somewhat.

Relative to reducing the time interval for paying up the stock, a certain number of these comments were received from employees who were able to participate in our plan years ago when it was possible to pay up the stock in six months. The temptation to sell this easily acquired stock on the open market at a profit was too great for most employees, and as a result the employees did not retain the stock. The present differential between our subscription price and the market price would net the employees a very handsome profit in case this arrangement was adopted and, therefore, the desire to sell would be even greater than years ago when the differential was only a few dollars. The recent change whereby it is possible to pay up the stock in about three years by the one dollar per week plan will undoubtedly help matters somewhat. It is felt, however, that if the time interval was reduced materially it would tempt the employee to sell his stock and reap a profit and spend the money, thus jeopardizing one of the prime objectives of the plan - i.e., provide a safe investment for employees which will be a source of income after their days of usefulness have elapsed.

Another complaint, which, while not occurring frequently, is voiced in comment numbers 9, 10, 14, 15, 17 18, 26, 32, 35, and 37. These deal briefly with apparent laxity shown by a few of our supervisors in handling subscription blanks or carelessness on the part

of the clerical forces or payroll in handling employee's subscriptions. While the number of complaints of this nature is small, as compared to the number of cases handled, it is nevertheless, an irritable point with employees as we can well imagine how we would feel under similar circumstances as recited in the comments quoted under above numbers.

It may be well in passing to note comments No. 19, 20, and 21 which are complaints regarding the lack of information broadcast to employees prior to (1) approximately five years ago when Mr. Schnedler made his talk in all departments, then (2) to a period of about three years ago when another burst of enthusiasm caused some supervisors to acquaint eligible employees regarding our plan and (3) the reaction of our recent efforts in this respect. All lament the fact that they were not made acquainted with the plan or that it was not thoroughly explained and that they would be much better off financially today if they had been properly informed. A suggestion for overcoming a kick of this nature is discussed in the following paragraphs as this condition is true of other plans.

The balance of the unfavorable comments on the Stock Purchase plan are either isolated cases of employees laboring under a misapprehension or obvious obsessions. Some of the complaints made have already been rectified or will be shortly. The complaint regarding not receiving notification of eligibility for stock (No. 18) will be mentioned in a succeeding paragraph.

It is apparent from a superficial perusal of the comments regarding the other thrift and saving plans that employees did not have nearly so much to say about them as about the A. T. & T. Plan. One interesting fact is the number of female comments (264) on the Ready Money Plan as against 153 male comments. This big lead is piled up in comment No. 2 - "Like weekly deduction arrangement". This apparently corroborates the statement previously made that women like the time payment feature and is another outcropping of their bargain hunting instinct. This same fact is also noticeable to a very marked degree in the comments on the other plans except in the case of Insurance which is more or less naturally a male interest throughout.

We believe that the reason employees do not comment more on plans other than A. T. & T. can be found in the unfavorable comments of the other plans, i.e., employees are not familiarized with these plans. This is undoubtedly due to the supervisor's personal preference for stock or his ignorance about the other plans. Then, too, the fact that the stock has been the best "buy" influences our judgment and naturally we want to get the most for our money.

How to broadcast the virtues of all of the various plans to every employee is a problem of no small dimension. It is apparent that many of the supervisors know little or nothing about them and it is a debatable question whether or not they should be the agency through whom this information should be spread, due to the magnitude of the task of first properly instructing them in all phases of our plans and then there exists the possibility that in the daily rush of work their efforts in this direction will be only spasmodic.

It is evident that there are many more employees who could be benefited if they were made acquainted with all of our plans. The recent adoption of a Branch Thrift Counselor is undoubtedly a step in the proper direction but the comments received indicate but one employee mentioning the fact that she enjoys the privilege of discussing financial matters with the Thrift Counselor. The fact that only one favorable comment was received endorsing the Thrift Counselor idea would seem to indicate that this set up has not been brought home to the employees or there is something inherently wrong in getting employees in contact with him. However, the fact that this is a rather recent innovation may also account for this. In looking through the unfavorable comments - "General Comment No. 5" - we find a suggestion which apparently possesses considerable merit - it is, "Company should appoint a Thrift Counselor in every department." If we analyze the comment mentioned above, it is evident that the employee would like to have the Thrift Counselor easily accessible. Seeing the Thrift Counselor more often would automatically make employees "thrift conscious" and make it easier for them to discuss their problems with him. This would necessarily mean a big expansion in our present "Thrift Counselor" set up.


Enlarging on this idea, it may prove feasible to have each employee be interviewed by a Thrift Counselor and volunteer his services in explaining all of our plans to the employee. Of course, this would have to be done with a great deal of tact, otherwise employees might get the idea we were trying to force them to participate in our various plans. This would do more damage to our well-meant plans than good, and, as stated before, it must be approached with diplomacy. As an example of furnishing a similar service in our daily life, we find the Life Insurance Companies foremost. Through their sales force and a nation-wide advertising campaign they have made most of us "insurance conscious". The vast reports and data compiled by them has been an invaluable contribution to the Medical and Social Welfare societies, as well as making the average individual realize just how much of a "break", if any, he is going to get after he approaches the inevitable day when he no longer will be able to keep up the struggle for his daily wage, or what his dependents will do after he is gone. Approaching the problem from this angle, and with these facts before us, we welcome any logical solution the Insurance Companies offer and feel they are rendering us a service in taking it is burden off our minds for a reasonable mitigation.

By the same token, this idea must be sold to the employees by direct contact with each employee by the Thrift Counselor, combined with an extensive advertising campaign, offering our services and stressing the point that this is done to assist them in working out the easiest manner to meet their particular problems. In so doing we have left no stone unturned to give each and every employee an opportunity to reap the greatest benefit from his available capital and thereby reap future happiness when most individuals are objects of charity or kind-hearted relations.

By expanding our Thrift Counselor idea, it would be well to centralize all functions relating to the handling of A. T. & T. subscription blanks and in fact all details which would logically fall into the thrift and saving category. This would also eliminate the troubles mentioned in a previous paragraph incidental to the supervisor's laxity in seeing that all employees were furnished with subscription blanks and straighten out questions of eligibility with more dispatch.

Summing up the conclusions, we may state that from what our employees say, our present programs have accomplished much good and have been a potent factor in selling the Company to the employee. The diversity of plans from all appearances covers the needs from every angle, but we have not concentrated equally on all plans. Undoubtedly there are many employees who could and would participate if they were given more details regarding the various plans and their relative points of merit. How to best spread the "gospel" to the employees is the big problem. Our past program of supervisors handling this has been successful in a measure, but its apparent weakness is that all supervisors are not good "salesmen". This may be due to improper or lack of training in this particular field, or some of it may be due to being a "fan" on one plan only. Then, too, we find a few cases where employees state they are just about forced to subscribe. This undoubtedly is due to the supervisor being over-zealous or "leaning over backwards" in an attempt to make the employees see why they should sign-up. The recent addition of a Thrift Counselor to each branch is a good move and without question performs valuable service to the employee, but it is apparent that many do not know much or anything about this service as it is left largely to the employee to take the initiative and look up this man. The psychology of advertising teaches us that in order to sell a service, even a "free" service, we must make the people "conscious" of this opportunity and it is logical that the best way to do this is by direct contact between the employee and the Thrift Counselor supplemented by a scientifically planned advertising campaign. This, of course, would be a physical impossibility under the present limited arrangement and would require training a sufficient number of qualified people to handle this work. Another factor favoring the expansion of the

Thrift Counselor set-up is the fact that it would be possible to give these people special training required to properly fill this position to the best advantage. It would be easier to train sufficient Thrift Counselors than it would be to train every line supervisor. Then, with this specially trained corps of Thrift Counselors, we will be enabled to bring the true message of thrift to every employee.

W. W. Keine


MA

Work.
Space

March 2, 1932.

[REDACTED] - 6088:

Subject: Employee Reaction to the Liquor Question.

Employees' interviews give little indication that they as individuals recognize prohibition as a condition; to the majority it is a name only. A casual check on interviews indicates that a large number of individuals accept the drinking of beer and wine as an accepted thing. Here and there an individual contrasts the quality of liquors obtainable now with that obtained before prohibition, but the younger set, where it is mentioned at all, seem to take it for granted that a party means indulgence to some extent.

A study of comments indicating unfortunate home conditions indicates that about two per cent attribute the trouble to liquor. Naturally, having no interviews taken prior to prohibition, we can make no comparison, but in general, would say that to the majority of those interviewed at the present time, prohibition means nothing but a name for something which is not in effect, and our interviews give no indication of the reaction of supervisors to conditions which exist.

[REDACTED] - 6088-4.

FEB:AW

THE SPIRIT OF COMPETITION IN INDUSTRY

There is a form of potential energy which, if not instinctive in human behavior, is certainly easily provoked. Call it Spirit of Competition. It is presumably a development of our struggle to survive. Surely actual competition was thrust upon our forebears more often than not in their attempt to adjust to the changing environment up through the centuries. It is still being thrust upon us, although in a more indirect intangible manner.

Most forms of competition today are enthusiastically participated in and enjoyed - if not too considered or otherwise unfair. The competitive spirit is in evidence and is whetted from early childhood by games, matches, horse affairs, and a myriad of other methods. What becomes of this energy after maturity? None, part of it is consumed by golf and baseball, part in the social world, by the urge to "keep up with the Joneses," and part in the business world by response to incentive systems in which money is the usual bait.

How near to the available maximum does industrial management come to utilizing this potential drive which is apparent by characteristics of human nature? Is utilization impeded by the present methods employed - or by the education of these methods? Is there need for additional or different methods? Such questions as these come to mind when considering this subject. Comments taken from employee interviews may throw some light on the above questions. Permittent remarks were made by employees under such subjects as Interest, Enjoy, Reward, and Advancement. Direct expression of the desire or liking to compete has been rare - now is this unusual. One rarely begins of liking to eat, yet one is quick to voice an attack of indigestion or what kinds of food are palatable. Thus most expressions on the subject of the competitive spirit in industry are found to be relative to the encouragement or discouragement received.

Competitive spirit finds outlet through various channels in this Company. The most prominent are (1) Advancement, (2) Piece Work (Individual, Group, etc.), (3) Rate Revision, and (4) Enjoy. Competition takes place between individuals, against time or quality records. The individual's reaction to these different incentives varies in consciousness of effort. One is ordinarily not nearly as consciously aware, for instance, of trying to beat Joe to the section chief's job as he is of trying to meet or beat the bogey. The individual's reaction to these incentives also varies with his idea of their attainability. A foot runner would not attempt to race a motorcycle. No man always believes he has a fair chance to win.

The type of competition which responds to the advancement motive is carried on between individuals and, in many of its phases, is an unconscious process. Individuals are influenced in their manner of dress, speech, posture, for instance, without realizing, unless they stop to think about it, the why of their actions. Employees are aware, however, of certain apparent conditions which encourage or stifle competitive spirit. The most numerously expressed thought about advancement in 1939 was to the effect that there were no higher steps from their present jobs. If there is no prize in sight, there will be no striving.

The following are other thoughts expressed under Advancement which influence competition, adversely, together with an example of each:

1. Supervisory favoritism: "They always tell you that there are quite a few chances for advancement in the Western Electric, but I do not believe it. There may be for some people who have friends here, but if you have no friends here, you will never get ahead. It is not what you know nor how much you can learn. It is whom you know here."
2. Selection of employees from other organizations: "When a section head was moved out of here instead of putting the man next to him on the job, they went to another department and got a section head there and brought him in here. I think that the man in the department should be given the chance at the jobs that are open because a man working on the bench will figure that if he had the chance he could do the job of the man that left and in that way when you see a man come in from another department you figure that your chances are shot for a supervisor's job and it will take the heart out of you."
3. Scarcity of encouragement and information on progress made: "One of the big troubles around here, as I have noticed in my experience with the Company is that the supervisors do not point out the faults of the employees. I feel certain that if these shortcomings were called to the attention of the employees and they were given the opportunity to remedy these, the Company would benefit greatly. We have a great many very good employees, but due to some shortcoming that could be overcome by an explanation, the Company is losing the benefit of these employees becoming executives."
4. Too many of longer service ahead: "Possibilities for advancement are very few, as there are so many men here with longer service than I have and there is no doubt that seniority should come first."

5. Sight of old timers on job: "There is not much chance for advancement. I see the old fellows who have been here ten to twenty years, still working in the same place on the same machine and never advancing a step. That doesn't encourage a young fellow much."

Competition developed by piece work systems may be either between individuals or against time. In most instances, individuals are conscious of their efforts to reach the goal, probably due to its tangibility. In the group piece work system, there seems to be two dominantly expressed conditions foreign to competitive spirit. The first is lack of unified effort. To quote an employee: "I don't like the gang piece work system. We have loafers in the gang and that kills the spirit of the whole gang. Operators who are good workers don't want to work hard and support some of the men who won't do their share." The second is individual effort improperly compensated. Illustrative is this comment: "I am here for the money and am anxious to get ahead and will work harder if I get more out of it; but it is mighty discouraging to be turning out so much more work and not getting any more money for it. I feel pretty bad about that; it gets me all out of sorts." Another angle of the same thought is expressed in this comment: "I used to work gang piece work. I did not like that as I could never make any money working that way. Low rated men and high rated men will be put on the same job. The low rated men realize that the high rated men gets the most money and they would get discouraged and lay down on the job."

Individual piece work also allegedly possesses features which discourage competitive spirit. Employees made numerous comment on low piece work rates (applicable also to group piece work). If good wages appear unattainable, ambition to reach this goal must suffer, as this employee aptly states: "We don't mind working hard if we know we will get something for it, but if a fellow works hard and doesn't make any money that takes all the joy out of life. I think I'm a pretty fast man, and if I can't make any money on the job there must be something wrong with the rates. I've made money on jobs where other fellows couldn't make anything." Another employee assertion is that there is supervisory partiality in assignment of work, as exemplified by the following statement: "The fellows on one side of me are making more than I am, and the fellows on the other side are making less. If you stand in with the boss you are jake, and you get the good jobs, if not, you get the bum ones. Then he works it this way. He will give a fellow a hard job and if he makes a few cents more than somebody else on it, then he will give him a still harder job. Instead of giving a fellow an easy job once in a while so he won't have to kill himself there, he gives him the hard jobs and the fellow who has a stand-in the easy jobs. I got so used to it now that I can make out on all the jobs, but believe me, I have to plug away to make my money and I have to earn every cent I get."

In many respects, advancement and rate revision are similar and the meaning of the words interchangeable. To some employees an increase in rate of pay is an advancement, to others advancement means recognized elevation of status and authority, with higher pay altruistically secondary. Because of the similarity of thought, a similarity of expression is found in rate revision comments. This applies in particular to those on supervisory favoritism. Other expressions, not applicable to advancement, were directed at inequality of hourly (or weekly) rates on basis of service, type of work, amount of work done, etc. Typifying this class of comment is the following employee statement: "There is another thing I could never understand, how it is that two fellows can be doing the same work and one gets more money an hour than the other. This other man has not worked here as long as I have, but still he gets five cents more an hour than I do. That is something that happens quite often in this department."

The bogey system, where in use, is probably more frequently in employee consciousness than any other incentive method. Theoretically and if properly applied, bogey offers competitive spirit more inducement to day-by-day action than any other incentive method. The goal or mark to shoot at is more definite and discernible. Success provides reward in higher earnings, achievement, promotion. Employee comments on bogey show evidences of both cultivation and destruction of the spirit of competition. Examples of the development of competitive spirit by the bogey system are as follows: "We have the bogey system in our department and I think it is a good thing as the fellows try to keep an even tempo with one another. This helps to keep our percentage up. If it wasn't for this bogey there would be a certain few who would lay down on the job." "We all try to get out plenty of work. I know every week my bogey runs from ninety to one hundred and fifteen per cent, and I am always trying to better that." Employee comment, however, was more voluminous on the discouraging or destructive elements of the bogey system as practiced. Outstanding mention was made of the unattainability of bogey rates and the effects thereof upon the individual. To cite a plausible parallel, a high-jumper, having the maximum ability under perfect physical and mental conditions to clear a bar at six feet, will come nearer to approaching his maximum ability with the bar at six feet, one inch than he will with the bar at six feet, five inches. At the lower height he thinks he can, at the other he knows he can't! The expression of futility may be noted in this employee comment: "I know I will never be able to make a hundred per cent because just as soon as we make a hundred per cent they will raise the bogey. But at the rate I am working now and I haven't made it as yet - I don't believe there is any chance of me ever making it. But the gang boss has fixed it so no one can make it, and there are some girls who are not even going to try. I feel there would be an inducement if someone had ever made a hundred per cent on this present bogey, but inasmuch as they have not I don't feel I have any goal to make because it is next to impossible." Stress was placed also

on faulty supervisory administration of the bogey system. Among other things, supervisors were accused of using the bogey as a "whip," attempting to drive employees toward the mark set rather than inspiring them to greater efforts, as pointed out by this employee: "Sometimes we work as hard as we can but don't get out as much work as we do at other times. Then the bosses come around and holler at us, tell us that we are not doing enough work. This gets us kind of down-hearted, and if we are behind in our bogey, they start to holler at us. Sometimes it is very hard to make the bogey."

It seems reasonable to assume that a properly aroused and sustained spirit of competition is of potent value to the extent and intensity of interest shown in a job. More particularly is this plausible in those occupations or situations making for few attention - sustaining possibilities, such as repetitive work, lack of new problems, lengthy time on job, etc. Although there was a dearth of testimonial to this assumption by employees, the need for something to combat the aforementioned detriments to job interest is evident. A successful conquest through the injection of competitive spirit is expressed by this comment: "I like my work because it is clean and interesting, even though it is the same thing all the time. I can try to increase my rate each morning and see how long it will take me to do so many parts, and I try to gain speed. This I do each morning; and the day passes so quickly."

It has been the purpose of this paper to present a human phenomenon, to suggest its possibilities industrially, and to point out the hindrances and aids to its development, as expressed by the employees of this Company. From a study of these employee comments, the following inferences may be drawn:

1. There is nothing basically detrimental to competitive spirit in the various incentive work. This system requires either a group spirit (probably similar to athletic team spirit) or possibly a between-members-of-group spirit. Inasmuch as most forms of competition are of an individualistic nature, management must undertake to inject a new type spirit if group piece work is to be completely successful.
2. The impediments to competitive spirit, as mentioned by employees, were almost entirely composed of faulty methods of administration, all of which should be remediable. One avenue of approach to this problem lies in its presentation to supervisors by the conference method.

6.

5. There were numerous manifestations as to the volatility of the desire or will to compete. Although ideal conditions are not necessary, careless or haphazard treatment is destructive to the benefits derivable from competition in industry.

OPERATING BRANCH CREDO

Some employees believe that:

It isn't what you know, but who you know that determines advancement. (Supervision, Advancement)

They are entitled to a raise after completion of six month's service. (Payment)

Any breach of conduct remains as a permanent blot on their company record. (Supervision)

The Interviewing Program is a means of combating the evils wrought by the "Hawthorne Worker". (Interviewing Program)

Saving through Company thrift plans imperils chances for raises. (Thrift, Payment)

The Personnel Organization is a "court of appeal" in all cases of industrial maladjustment. (Placement)

Increases in production incur cuts in piece work rates. (Payment)

Attendance at night school will make a better job available. (Education)

The Personnel Organization is a "tool" of the supervisors. (Placement)

They are entitled to a raise if bogey is met and maintained. (Bogey, Payment)

If they are not of the same nationality as their immediate supervisor they are working under a handicap. (Supervision)

Long service employees are taken advantage of because, in view of benefits available, the Company 'Knows they won't quit.' (General)

When the boss says "black" is "white", it's "white". (Supervision)

When they become expert at their job the chances of a transfer diminish. (Placement)

The chances for receiving credit for suggestions are slight as supervisors or others steal the credit. (Supervision)

Western Electric is a better place to work than any other industrial concern. (Placement)

Hawthorne Club athletics are for a favored few. (Club Activities)

