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SCHOOL OF HOME ECONOMICS  
MICHIGAN STATE COLLEGE  
EAST LANSING, MICHIGAN

/A COMPARISON OF LABOR HOURS AND LABOR COSTS  
IN TWO WOMEN'S RESIDENCE HALLS/

By

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//

A PROBLEM

Submitted to the Dean of the College of Home Economics  
of Michigan State University of Agriculture and  
Applied Science in partial fulfillment of the  
requirements for the degree of

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1955

SCHOOL OF HOME ECONOMICS  
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## TABLE OF CONTENTS

INTRODUCTION . . . . .	1
PROCEDURE . . . . .	4
DISCUSSION . . . . .	7
General Policies for Full Time Food Service Workers .	9
Time and rate . . . . .	9
Meal charges . . . . .	10
Fringe benefits . . . . .	11
Regulations for Part Time Food Service Workers . . .	13
Time and rate . . . . .	14
Mary Mayo Food Service . . . . .	15
Physical layout . . . . .	15
Labor hours . . . . .	17
Labor cost . . . . .	23
Mason-Abbot Food Service . . . . .	29
Physical layout . . . . .	29
Labor hours . . . . .	32
Labor cost . . . . .	35
Comparison of Small and Large Food Service Units . .	39
Labor hours . . . . .	42
Labor costs . . . . .	44
SUMMARY AND CONCLUSION . . . . .	50
LITERATURE CITED . . . . .	54
APPENDIX . . . . .	55

# LIST OF TABLES

Table	Page
1. Census and income for Mary Mayo and Mason-Abbot Residence Halls . . . . .	6
2. Summary of labor hours by work area and classification. Mary Mayo Residence Hall. . . . .	19
3. Minutes of labor and cost per resident per day by work area. Mary Mayo Residence Hall . . . . .	24
4. Summary of labor costs by work area and classification. Mary Mayo Cafeteria . . . . .	25
5. Labor cost in terms of percentages of receipts for fourteen-day period for Mary Mayo Residence Hall . .	28
6. Summary of labor costs by work area and classification. Mason-Abbot Residence Hall . . . . .	33
7. Minutes of labor and cost per resident per day by work area for fourteen-day period for Mason-Abbot Residence Hall . . . . .	36
8. Summary of labor costs by work areas and classification. Mason-Abbot Residence Hall . . . . .	37
9. Labor cost as percentage of receipts. Mason-Abbot Residence Hall . . . . .	40
10. A comparison of percentages of total labor hours of Mary Mayo and Mason-Abbot Residence Halls . . . . .	43
11. A comparison of labor minutes per day for Mary Mayo and Mason-Abbot Residence Halls . . . . .	45
12. A comparison of percentages of total labor dollar for Mary Mayo and Mason-Abbot Residence Halls . . . . .	46
13. A comparison of labor costs per resident per day according to work area; Mary Mayo and Mason-Abbot Residence Halls . . . . .	48
14. A comparison of labor cost as percentage of total food receipts according to the work area; Mary Mayo and Mason-Abbot Residence Halls . . . . .	49
15. Recapitulation of data for Mary Mayo Residence Hall .	56

# LIST OF TABLES (contd.)

Table	Page
16. Recapitulation of data for Mason-Abbot Residence Hall . . . . .	57

## Work Sheet

1. Labor hours by classification and work area for Mary Mayo Residence Hall . . . . .	58
2. Labor hours by classification and work area for Mason-Abbot Residence Hall . . . . .	59
3. Labor costs by classification and work area for Mary Mayo Residence Hall . . . . .	61
4. Labor costs by classification and work area for Mason-Abbot Residence Hall . . . . .	62



## LIST OF FIGURES

Figure	Page
1. Labor hour percentages by work area for Mary Mayo Residence Hall . . . . .	22
2. Labor cost percentages by work area for Mary Mayo Residence Hall . . . . .	27
3. Labor hour percentages by work area for Mason-Abbot Residence Hall . . . . .	34
4. Labor cost percentages by work area for Mason-Abbot Residence Hall . . . . .	38

## INTRODUCTION

A prime function of management is cost control. Maintenance of a satisfactory ratio between costs and sales determines the financial security of any business venture. Industry has long been aware of the importance of labor cost control. Early in the twentieth century Frank Gilbreth approached the problem of labor cost control and productivity by studying motion economy and fatigue reduction. More recently, the role of "human relationships" in labor cost control has been emphasized.

The food service industry has been cognizant of the necessity for control of all expense items, and it has had little difficulty in determining the ratios between costs and sales essential to operating at a reasonable profit. A review of the literature gives the range of accepted operating ratios for each expense item in different types of food service establishments. Analysis of operating costs and evaluating the findings in terms of these ratios provides a means of measuring the efficiency and soundness of a business operation.

The pressure of rising wages and increased fringe benefits has forced labor costs in the food service industry to rise rapidly. At present, food costs are relatively easy to control. However, the ratio between income and labor costs has exceeded

the accepted ratios; and this relationship has become a matter of great concern to the food service operator.

To effectively study labor hours and labor costs, it is necessary to find the factors that make up the cost and to analyze the problem on this basis. Although the factors of human relationships directly affect the efficiency and productiveness of the organization, and in turn affect the control of labor hours and labor costs, they cannot be treated objectively. Previous studies have shown that the number of labor hours required and their costs depend on many factors. West and Wood (9) stated that the type of service, the number served, the physical layout, and the amount and kind of labor saving equipment available affect the percentage of income spent for labor. Non-productive costs such as paid vacations, sick leaves, and other employee benefits must also be considered in the determination of labor cost (7).

Fairbrook (4) and Kirkpatrick (7) established objective measures of labor efficiency which may be applied to any food service organization. These measures are based on sales or receipts, payroll costs, customer count, and labor hours. The purpose of this study was to use these measures in comparing labor hours and labor costs of two college residence hall food services for the payroll period February 5, 1955 through February 18, 1955.

In this study, total labor hours were interpreted in



terms of average minutes of labor per resident per day and labor hour percentages according to specified work areas. Labor costs were analyzed in terms of average daily cost per resident, percentage of the labor dollar spent in each work area, and percentage of income according to specified work areas.

## PROCEDURE

The data for this study were compiled from payroll records, time cards, observation, and consultations with the staffs of Mason-Abbot Residence Hall and Mary Mayo Residence Hall.

The payroll period February 5, 1955 through February 18, 1955, was selected for this study because this was considered a normal period with no special events in the two residence halls under study which would influence the labor requirements. All jobs in the food service operations were assigned to five major work areas with subdivisions as outlined below.

- I. Receiving and storage
- II. Preparation
  - A. Raw food
    - 1. Potato
    - 2. All other
  - B. Range
  - C. Salad
  - D. Bake shop
- III. Service
  - A. Counter
  - B. Clearing of Dining rooms
- IV. Cleaning
  - A. Dishhandling
    - 1. Dishmachine operation
    - 2. Dishmachine maintenance
  - B. Kitchen
  - C. Dining room
  - D. Pots and pans
  - E. Laundry
- V. Supervision

On worksheets 1 and 2 in the Appendix, each of the employees was listed, and the total number of hours worked by

each person was recorded for the 14-day period of the study. A total of labor hours for each work area was determined by allocating the time spent on a specific job to the proper work area. Full time employee labor hours and part time student employee labor hours were calculated separately.

Work sheets of labor costs were derived from the data obtained in the labor hours work sheets. The pay rate of each employee was listed, and the total labor costs of each work area was computed by multiplying the labor hours by the pay rate.

Area cost percentages of total labor cost were based on actual payroll records as shown in work sheets 3 and 4 in the Appendix. Calculations of area cost percentages of total income were based on figures obtained from the weekly operating reports, shown in Table 1. The daily labor cost for a specified work area was divided by the number of residents to obtain the average daily cost per resident.



TABLE 1. CENSUS AND INCOME FOR MARY MAYO AND MASON-ABBOT  
RESIDENCE HALLS. FEBRUARY 5 THROUGH 13, 1955.

Data	Mary Mayo	Mason-Abbot
Average census	269	844.5
Full time employees	14	35
Student employees		
Male	25	46
Female	10	40
Staff	10	31
Total, excluding student female employees	328	956.5
Income from residents	7142.10	21958.30
Income from full time employees meals (rebate)	157.60	267.70
Income from male student employees	744.80	1267.30
Income from guest tickets	56.70	199.69
Interdepartments		100.05
Total income for 14-day period	\$8101.20	\$23793.04

## DISCUSSION

At the time of this study, the Department of Dormitories and Food Services included seven residence halls for women, and three residence halls for men. The manager of each of these residence halls directed the operation of its food service department which was responsible for the preparation and service of meals for its own residents, their guests, resident staff and the employees engaged in both the food department and the hall maintenance department. The Food Service Director coordinated the operation of the ten individual residence hall food service units.

Purchasing of meats, produce, staples, canned goods, frozen foods, cheese, and miscellaneous items was performed by the manager of Food Stores. Bakery items and dairy items, with the exception previously mentioned, were bought directly from specified vendors by each residence hall. The amount of time required by the manager to obtain quality foods was thus substantially decreased, and she had more time to devote to consideration of the labor cost problem. Centralized purchasing of most food items also resulted in a predictable delivery schedule which one might expect to be reflected in a more efficient receiving and storage operation.

Residence hall food services served three meals a day, cafeteria style, during the three terms of the school year.

Thus, each residence hall food service provided attractive, nutritious meals to students, staff and employees approximately 240 days each school year. During designated college vacations the dormitory food services are not operated. Student board charges were based only on the number of days on which the food departments were in operation.

When this study was in progress, a three-week-cycle menu was in use in the seven Women's Residence Halls. The managers and the Food Director formed the committee which established the menus. The basic menu pattern included:

Breakfast: Juice or fruit, entree, cereal, toast and beverages

Lunch: Soup or juice, entree, bread, salad, dessert, and beverages.

Dinner: Entree, potato, vegetable, rolls, salad, dessert, and beverages.

The period of cafeteria service for each meal was based on a span which permitted the greatest possible flexibility in scheduling of student classes in the college academic program. In many food service units the serving period could be appreciably shortened if meeting the problem of class schedules was not a major consideration. Meal service periods during this study are listed below.

Meal	Employees (one line only)	Residents (two lines)
Breakfast		
Monday through Friday	7:00 - 7:20	7:20 - 7:40
Saturday	8:00 - 10:00	8:00 - 10:00
Sunday	8:00 - 10:00	8:30 - 10:00
Lunch		
Monday through Friday	11:00 - 11:25	11:25 - 12:45
Saturday	11:00 - 11:30	11:30 - 12:20
Sunday	5:00 - 5:30	5:30 - 6:00
Dinner		
Monday through Friday	5:00 - 5:30	5:30 - 6:20
Saturday	5:00 - 5:30	5:30 - 6:00
Sunday	12:00 - 12:45	12:45 - 1:15

#### General Policies for Full Time Food Service Workers.

Personnel policies affecting all University employees are established by the Personnel Office. These basic regulations, applied and interpreted by the residence hall managers, determined the size of the labor force, work schedules, and pay rates within each operating unit.

#### Time and rate.

In 1950, a 40 hour work week was established for all University employees. Hourly rates for all job classifications

were determined at that time and have subsequently been adjusted on the basis of trends in the cost of living index and changes in the labor market. The wage scale was established to provide a minimum and a maximum rate for each job classification.

At four and six months intervals, the manager was requested by the Personnel Office to rate new employees for establishing a basis for merit raises. After a period of six months, recommendation of merit raises was left to the discretion of the manager for whom the employee worked. It is understandable that an operating unit which has a large number of employees with many years of service will automatically have many who are receiving the maximum rate for their job classification. This situation may be reflected in a labor cost higher than would seem commensurate with the total labor hours for a specified period. However, efficiency of the operation cannot be interpreted completely on the basis of this numerical ratio. Some thought must be given to the advantages of a stable force as opposed to the uncertain returns of a labor force with high turnover.

#### Meal charges.

Since most employees were on duty during one or more of the regular meal hours, it was assumed that they could eat

their meals most conveniently in the food service department. Consequently, a deduction for employees meals was made from their pay checks to cover the cost of these meals. Deductions were as follows: 30 cents for breakfast, 40 cents for lunch, and 50 cents for dinner. The amount of money deducted from employee checks was added to the food receipts for each hall.

#### Fringe benefits.

During the period of this study the costs of fringe benefits to the two food service departments were limited to the direct cost of sick leave and the indirect costs of rest periods and uniforms. No costs for fringe benefits were included in the labor cost figures of this study except those mentioned.

According to University policy, all full time employees were entitled to receive fringe benefits listed here. The cost of items one through eight was paid by the unit in which the employee worked. Expenses of item nine were defrayed by an all-University fund.

1. Paid sick leave. Allowance for sick leave was based on one day per month. Paid sick leave time could not be accumulated beyond a total of 30 days.
2. Paid absence due to death in the immediate family. The employee was allowed absence from work without loss of pay from the day of death until after the funeral. Total time for this reason was not to exceed three days.

3. Paid vacation.  
This was based on the length of service:

<u>Length of service</u>	<u>Vacation allowance</u>
6 months to 1 year	5 working days
1 year to 5 years	10 working days
5 years to 15 years	15 working days
15 years or more	20 working days

4. Paid holidays.  
The University normally observed the following six holidays:

New Year's Day	Labor Day
Memorial Day	Thanksgiving Day
Independence Day	Christmas Day

5. Workmen's Compensation.  
This was paid as specified by the State of Michigan provided that the employee followed the instructions of the University health director and that the employee returned to work at the time recommended by the health director.
6. Rest periods.  
Two 15-minute periods were provided in the work schedule and coffee was furnished.
7. Uniforms.  
These were provided, replaced as needed, and laundered.
8. Hospitalization.  
Hospitalization was provided by University Health Service for on-the-job accident or illness.
9. Retirement-Group Life Insurance Program.  
Participation in this program was compulsory for employees beginning work before they reached the age of 50. A nominal charge was made to the employee each month as insurance premium. The University provided for the retirement program without charge to the employee.

In a short-term study the cost of fringe benefits cannot be effectively analyzed. Therefore, management must not be misled by the findings of short term studies but must also



evaluate labor cost in terms of vacations, sick leave, compensation pay, and similar items which are usually distributed unequally during the year. Admittedly, the findings of any two-week study such as this one have limitations. These findings must not be considered to represent an average figure for any selected two-week period during the year because they do not include the costs of most of the major fringe benefits.

In 1954, a long term study of the fringe benefits in six of the Women's Residence Halls was conducted by Gould (6). The results of this study showed that the cost of fringe benefits amounted to 16.49% of the total payroll. The cost per employee was \$383.50 per year. Schmidt (8), from a survey conducted by the U.S. Chamber of Commerce in 1951, reported that the average employee received fringe benefits amounting to \$644.00 per year. The survey included pension plans and social security. The University employees did not participate in either program at the time of Gould's study.

#### Regulations for Part Time Food Service Workers.

During peak periods of food preparation and service, an operating unit may find it necessary to use part time employees. In the two food service departments which were compared in this study, both students and non-students were used in this capacity. According to University policy, employees who work less than

40 hours per week are not eligible for fringe benefits with the exception of item seven, previously listed.

Time and rate.

Schedules for part time workers were determined by the needs of the food service operation. Workers were assigned to a specific job for a definite period. The rate for student employees was set by the University at 85 cents per hour. Rates for non-students were specified by the Personnel Office at the time of employment.

Men students were hired through the University Placement Bureau. The men were listed as boarders in the records of the Board and Room Office and were charged the same rate for meals as were the residents. An average of 15.5 hours of work per week was sufficient to cover this charge. The bi-weekly pay check was sent to the Board and Room Office to be applied on the board charge and credited as a receipt for the Cafeteria Department.

Women students were recruited from the residents of the hall. Since University housing charges were part of the registration fees, these employees had paid the meal charge. The bi-weekly pay checks were issued to the women student employees.

### Mary Mayo Food Service

This food service was the smallest of the seven residence halls for women at Michigan State University. Both the lounges and dining rooms were designed to give a home-like effect. Although this division of public space into relatively small areas accomplished this objective admirably, it does present some problems in the control of labor cost.

#### Physical layout.

Mary Mayo Residence Hall, built in 1930, was planned to provide housing and feeding facilities for 246 students. During the school year 1954 - 1955, the average number of residents was 279. The food service area was located on the ground floor and consisted of two dining rooms, two service counters, the production area, a receiving dock, a freight lift, and the office. Incorporated in the production area were a bake shop, a salad room, pot and pan sinks, and the dishwashing machine operation. A storeroom for staple groceries, a vegetable preparation unit, and three walk-in refrigerators were located in the basement directly below the kitchen.

Although it would have been entirely possible to serve all of the residents in one large dining room, two small dining rooms were included in the original plan of the hall. This necessitates some duplication of jobs for serving and

clearing the dining room which is reflected in the labor hours and costs.

Some of the advantages of having the dishwashing center on the same floor level as the dining rooms is offset by having it located very close to the main preparation center. At the peak of the serving periods, this arrangement sometimes results in confusion and loss of time. Areas for landing both soiled and clean dishes are limited by this physical arrangement, and this also affects the efficiency of the washing operation and the storing of clean dishes.

The small size freight lift, which measures only 30 inches by 24 inches by 48 inches, results in considerable extra handling to get deliveries properly stored on the basement level. The bottom of the lift is 31 inches above each floor level, and this necessitates extra labor in loading and unloading foods.

Heavy equipment and labor saving devices in the various preparation areas are located as follows:

- |            |  |
|------------|--|
| Range.     | One 3-deck electric oven, two gas ranges with grill top surfaces and oven space, two electric french fry units with a capacity of 25 pounds of shortening each, one bain marie, one 3-deck steam chef, one 20-gallon steam vat, one 30-gallon braiser, a small food cutter, and a 12-quart mixer with attachments. |
| Bake shop. | One 3-deck electric oven, one 20-quart mixer, one 12-quart mixer, one small set of balance scales, two cooling racks, one bakers table with built in bins for storing 65 pounds each of flours and granulated sugar.   |

Salad. One 2-compartmented sink, one garbage disposal unit, one electric slicer, one work table.

Preparation. One 20-pound capacity electric potato peeler.

Serving counter areas. Two 5-section steam tables with laminated wooden counter surface, two coffee urns, two gas toasters, and two 10-gallon electric milk dispensers.

### Labor hours.

To be meaningful, comparison of labor hours must be expressed as percentages of the total labor time. In Table 2 are shown the percentages of labor hours computed by work area and classification of the employee. During the period of this study, the range work constituted more than half of the time expended in the preparation area. Part time employees in the range area accounted for approximately one seventh of the preparation labor hours. Three student cooks were responsible for opening the kitchen and preparing breakfast each morning. For assuming this responsibility, these students were guaranteed payment to cover the board charges. Thus, the 94.50 hours worked by these part time employees were charged against the range during this study.

The service area accounted for approximately one half of one per cent more labor time than did the preparation area. The counter service amounted to one fifth of the total labor

hours. Part time employees were utilized in this area and supplied 22.24% of the labor time.

The dishmachine operation used 15.45% of the total labor hours. Part time employees were utilized almost exclusively in this area. Of the remaining 17.40% labor hours, full time employees expended 11.02% in the sub divisions of kitchen, dining room, pots and pans, and laundry. Part time employees worked in the areas of dishmachine maintenance, kitchen, dining room, and pots and pans.

TABLE 2. SUMMARY OF LABOR HOURS BY WORK AREA AND CLASSIFICATION. MARY MAYO RESIDENCE HALL. FEBRUARY 5 THROUGH 18, 1955

Work area	CLASSIFICATION					
	Hours			Percentage of total hours		
	total	full time	part time	total	full time	part time
Receiving and storage	100.75	80.00	20.75	4.61	3.66	.95
Preparation						
Potato	12.00	12.00		.55	.55	
All other raw food	52.00	52.00		2.38	2.38	
Range	312.50	218.00	94.50	14.29	9.97	4.32
Salad	113.00	113.00		5.16	5.16	
Bake shop	107.00	107.00		4.89	4.89	
Service						
Counter	438.75	125.00	313.75	20.06	5.71	14.34
Clear dining room	172.75		172.75	7.90	27.96	7.90
Cleaning						
Dishmachine operation	338.00	12.00	326.00	15.45	.55	14.90
Dishmachine maintenance	22.25		22.25	1.02		1.02
Kitchen	150.00	91.00	59.00	6.86	4.16	2.70
Dining room	75.75	50.00	25.75	3.46	2.29	1.18
Pots and pans	107.50	75.00	32.50	4.92	3.43	1.48
Laundry	25.00	25.00		1.14	1.14	
Supervision	160.00	160.00		7.31	7.31	
Totals	2187.25	1120.00	1067.25	100.00%	51.21%	48.79%

Supervision included the time spent by the food supervisor and the practical supervisor. The time spent in food service by the manager was not included. Although it was necessary that the manager directly supervise the food service area two days a week to cover days off, her salary was not paid from the cafeteria funds. It was felt that the addition of this time would tend to distort the picture of labor hours and labor costs during this study.

The New York State Restaurant Association (8) established labor hour percentages of  $33 \frac{1}{3}\%$  for each of the three work areas of preparation, service and cleaning. The percentages calculated in this study, illustrated in Figure 1, compare favorably with those standards.

A measure of labor efficiency which has been used in previous studies is the number of labor minutes per customer. The Western Washington Dietetic Association (10) in 1933 reported an average of 10.59 minutes of labor per meal served in university dormitories. The time was spent as follows: preparation 4.23 minutes, service 2.28 minutes, and cleaning 4.08 minutes. Augustine (1) reported that the labor minutes per resident decreased as the number served increased. Units serving 200-299 college residents spent 12.7 minutes per meal served, and units serving 400 or more residents expended only 10.5 minutes per meal served. In a similar study, Bryan and Zabriskie (3) found units serving up to 300 meals daily



spent 18 minutes per meal served for each resident, and other food service operations serving from 750 to 1700 meals daily spent only 11 minutes per meal served.

22.

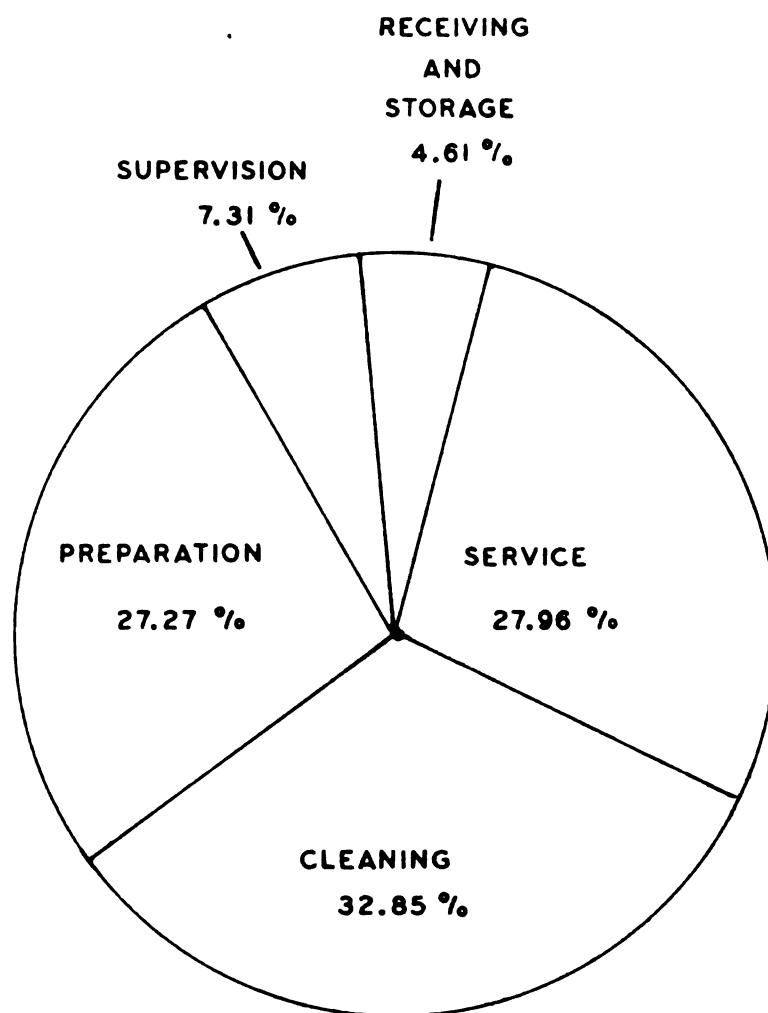


FIGURE 1. LABOR HOUR PERCENTAGES BY WORK AREA FOR  
MARY MAYO RESIDENCE HALL  
FEBRUARY 5 THROUGH 18, 1955

Labor minutes per resident per day in this study are in Table 3. Because the food service provided three meals a day per resident, the time expended per meal was determined by dividing the total time by three. On this basis it was found that 11.62 minutes per resident per meal was spent in preparation, service, cleaning, supervision, and receiving and storage. This is less than Kirkpatrick's (7) finding of 14.08 minutes of labor per customer per day and slightly more than the previously mentioned studies.

#### Labor cost.

Percentages of labor costs, shown in Table 4, indicated that the preparation work area constituted 31.43% of the total payroll. Because employees in the preparation area received the highest wages, their wages comprised 16.59% of the labor dollar, although their labor hours represented only 14.29% of the total labor hours. Full time employee cost for preparation on the range was 13.26%, and the bake shop labor cost was 6.21% of the total labor cost. At the time of this study, one range cook was near retirement, one had been employed for thirteen years, and the baker had been employed for ten years. Due to merit increases and general cost of living raises, their wages were somewhat higher than might be expected for a residence hall of this size.

TABLE 3. MINUTES OF LABOR AND COST PER RESIDENT PER DAY BY WORK AREA.  
MARY MAYO RESIDENCE HALL. FEBRUARY 5 THROUGH 18, 1955.

Work area	Minutes of labor per resident per day	Cost per resident per day cents
Receiving and storage	1.61	.0413
Preparation		
Potato	.19	.0034
All other raw food	.83	.0151
Range	4.48	.1061
Salad	1.60	.0367
Bake shop	<u>1.70</u>	<u>.0327</u>
	9.50	.2010
Service		
Counter	6.99	.1100
Clear dining room	<u>2.75</u>	<u>.0390</u>
	9.74	.1490
Cleaning		
Dishmachine operation	5.38	.0775
Dishmachine maintenance	.35	.0050
Kitchen	2.39	.0438
Pots and pans	1.72	.0252
Laundry	.40	.0084
Dining room	<u>1.21</u>	<u>.0225</u>
	11.45	.1824
Supervision	2.55	.0652
	<u>34.85</u>	<u>.6395</u>



TABLE 4. SUMMARY OF LABOR COSTS BY WORK AREA AND CLASSIFICATION. MARY MAYO CAFETERIA, FEBRUARY 5 THROUGH 18, 1955

Work area	CLASSIFICATION					
	Dollars			Percentage of total cost		
	total	full time	part time	total	full time	part time
Receiving and storage	157.48	139.84	17.64	6.53	5.81	.72
Preparation						
Potato	12.90	12.90		.54	.54	
All other raw food	56.80	56.80		2.36	2.36	
Range	399.69	319.36	80.33	16.59	13.26	3.33
Salad	138.11	138.11		5.73	5.73	
Bake shop	<u>149.50</u>	<u>149.50</u>		<u>6.21</u>	<u>6.21</u>	
	757.00			31.43		
Service						
Counter	414.13	147.45	266.68	17.20	6.12	11.07
Clear dining room	<u>146.84</u>		<u>146.84</u>	<u>6.10</u>		<u>6.10</u>
	560.97			23.30		
Cleaning						
Dishmachine operation	292.20	15.10	277.10	12.13	.63	11.53
Dishmachine cleaning	18.91		18.91	.79		.79
Kitchen	164.85	114.70	50.15	6.84	4.76	2.08
Dining room	84.64	62.75	21.89	3.52	2.61	.90
Pots and pans	95.12	67.50	27.62	3.95	2.80	1.14
Laundry	<u>31.83</u>	<u>31.83</u>		<u>1.32</u>	<u>1.32</u>	
	687.55			28.55		
Supervision	245.54	245.54		10.19	10.19	
Totals	\$2408.54	\$1501.38	\$907.16	100.00%	62.34%	37.66%

TABLE 4. SUMMARY OF LABOR COST

---

Work area

---

Receiving and storage

Preparation

Potato

All other raw food

Range

Salad

Bake shop

Service

Counter

Clear dining room

Cleaning

Dishmachine operation

Dishmachine cleaning

Kitchen

Dining room

Pots and pans

Laundry

Supervision

Totals

The full time employee is regarded as the core of the food service operation, but part time work must not be regarded as incidental. A fluctuation of labor hours and labor costs of the part time work can play havoc with the ratio of labor cost to receipts (2). Full time employees received 62.34% of the total payroll for the period of this study. Part time employee cost were centered in the counter service and the dishmachine operation. Total labor cost percentages are shown in Figure 2.

The labor cost expressed in cents per resident per day is shown in Table 3. The total cost was 63.95 cents per resident per day, or 21.31 cents per resident per meal. The cost of range area preparation was 10.31 cents, the counter service cost was 11.00 cents and the cost of the dishmachine operation was 7.75 cents per resident per day.

The best known and most commonly used measure of labor efficiency has been the ratio of labor cost to receipts (2). In Table 5 are data which show the ratio of labor cost of the major work areas to total receipts. The ratios of cost to income for the entire operation, 29.73%, is within the range specified by Bryan and Zabriskie (3). However, the cost of fringe benefits over the period of a year must be considered in determining the typical operating ratios. The yearly ratio at the time of this study was 33.73%, or 4% more than the operating ratio of this two week study. At present, there is no standard of accepted range for ratios of costs to receipts for each major work area. The ratios determined in this study are given in Table 5.



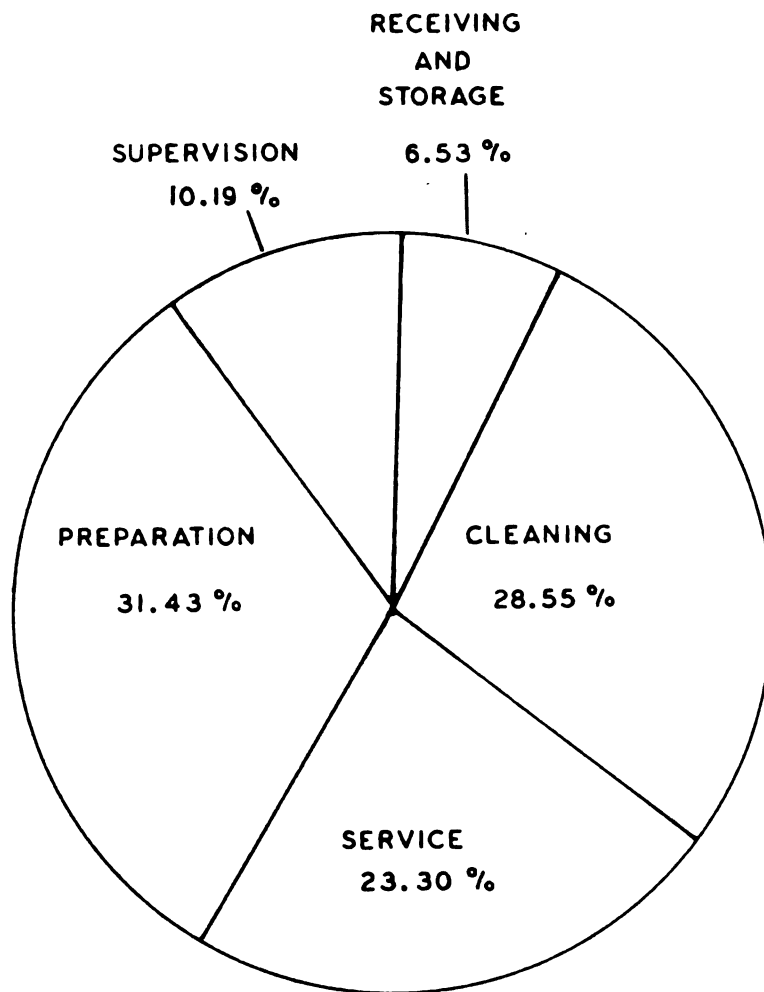


FIGURE 2. LABOR COST PERCENTAGES BY WORK AREA FOR  
MARY MAYO RESIDENCE HALL  
FEBRUARY 5 THROUGH 18, 1955



TABLE 5. LABOR COST IN TERMS OF PERCENTAGES OF RECEIPTS  
FOR FOURTEEN-DAY PERIOD FOR MARY MAYO  
RESIDENCE HALL.

Work area	labor cost as percentage of receipts	
Receiving and storage		1.94
Preparation		
Potato	.16	
All other raw food	.70	
Range	4.93	
Salad	1.71	
Bake shop	<u>1.85</u>	9.35
Service		
Counter	5.11	
Clear dining room	<u>1.81</u>	6.92
Cleaning		
Dishmachine operation	3.61	
Dishmachine cleaning	.23	
Kitchen cleaning	2.04	
Dining room	1.05	
Pots and pans	1.17	
Laundry	<u>.39</u>	8.49
Supervision		3.03
		<u>29.73</u>

### Mason-Abbot Food Service

This food service unit was the largest of the seven Women's Residence Halls. The building was designed to house men students, and the public lounge space provided was relatively small. The two large residence halls, comprising this building, are served by a common food service department.

#### Physical layout.

Mason-Abbot Residence Hall was built in 1940 to provide housing and feeding facilities for 328 men students. In 1952 the hall was permanently converted to house and feed women students. An average of 910 residents was housed during the school year 1954-1955. Two dining rooms, two double serving counters, the production area, a small office, a freight elevator, and a receiving dock constituted the food service area on the main floor. The production area incorporated a main kitchen, a bake shop, the pot and pan area, and a dishwashing center. Salad kitchenettes were located adjacent to each serving counter. A storeroom for staple groceries, root storage space, vegetable and salad preparation units, three walk-in refrigerators, and two walk-in deep freeze boxes were located in the basement. A small service counter and dining area, with a seating capacity of 64, for employees

and between-meal feeding was also located in the basement. Due to academic class schedules many students did not have a free period during the established meal service time. The small dining room, originally planned for employees, was opened from

10:30 a.m. to 11:20 a.m.
12:30 p.m. to 1:30 p.m.
4:00 p.m. to 5:25 p.m.

This additional service is reflected in labor hours and labor cost.

Mason Hall counter is serviced by traversing a narrow corridor from the main kitchen. This corridor is also used to give access to the small outside receiving dock and the freight elevator and for taking soiled dishes from the Mason dining room to the dishwashing center. At peak periods, this cross traffic results in confusion and loss of time.

Although the dishroom is located on the same floor level as the dining rooms, it is not large enough to accommodate the storage of the trucks which carry the dirty dishes from the dining rooms to the dishroom. During the serving period, carts are often left standing in the small corridor previously mentioned.

Deliveries of staple items such as flour and sugar are stacked by Food stores on skids which do not fit on the freight elevator. Transfer of the items to skids which do fit the elevator results in loss of time and effort.

The salad preparation unit, located in the basement, is a considerable distance from the counter kitchenettes where

the salads are assembled for service. Neither the preparation area or the kitchenettes have garbage disposal units, and time is lost carrying trimmings to the nearest disposal.

Heavy equipment and labor saving devices in the various preparation area are located as follows:

- Range. Two 4-deck gas ovens, two 3-tier steam chefs, two 60-gallon steam vats, two braisers, one electric mixer of 60-quart capacity, one 20-pound capacity food chopper, five gas stoves with grill surfaces and oven space, two 20-quart trunnion steam kettles, two electric french fryers with capacity of 75-pounds of shortening each.
- Bake shop. One Reed-reel bake oven, one 110-quart electric mixer, one roll divider with capacity for 3 dozen rolls, one small balance scale, one 50-gallon trunnion steam kettle, one 20-gallon trunnion steam kettle, one electric french fryer with capacity of 50-pounds of shortening, one proof box, one cream puff filler, one fried cake shaper, one bun cutter, one 2-burner gas plate, one large baker's table.
- Preparation, salad. One 2-compartment sink, one 20-quart electric mixer, one electric slicer.
- Preparation, vegetables. One 100-pound capacity potato peeler, one storage bin for prepared potatoes, one 2-compartment sink, one garbage disposal unit.
- Salad kitchenettes. In each, one 2-compartment sink, table and carts for work space, three reach-through refrigerators.
- Serving counter areas. On each counter, two steam tables with space for three counter pans and four wells, two coffee batteries, one 20-gallon electric milk dispenser, two gas toasters.

Labor hours.

According to percentages of total labor hours for Mason-Abbot Food Service, shown in Table 6, 42.72% was spent in the service area. Of the total time, 23.01% was spent in serving at the cafeteria counters. Of the total time spent on actual serving 38.50% of the labor hours were attributed to part time employees. For the purpose of comparison with Mary Mayo Hall, labor hours spent on salad setups were allocated to the preparation area rather than the service area.

The cleaning area ranked second in total time expended. The dishmachine operation required approximately one half of the time in this area. Laundry is charged with 80.00 hours during the period of this study. This time includes the care of the Hall laundry as well as the laundry from the food service department. Labor hours charged against part time employees in this area constituted 6.91% of the total.

The preparation area ranked third in number of labor hours spent. In this area range preparation was 7.90% of the total time. Salad preparation time includes the labor spent cleaning the salad ingredients and the set up of individual salads. Total labor hour percentages for the major work areas are shown in Figure 3.





TABLE 6. SUMMARY OF LABOR HOURS BY WORK AREA AND CLASSIFICATION. MASON-ABBOT RESIDENCE HALL. FEBRUARY 5 THROUGH 18, 1955

Work area	CLASSIFICATION					
	total	Hours full time	part time	total	Percentage of total hours full time	part time
Receiving and storage	100.25	80.00	20.25		1.92	1.53
Preparation						
Potato	60.00	60.00		1.15	1.15	
All other raw food	60.00	60.00		1.15	1.15	
Range	416.00	416.00		7.98	7.98	
Salad	322.00	322.00		6.18	6.18	
Bake shop	350.00	350.00		6.71	6.71	
	1208.00			23.17		
Service						
Counter	1200.00	220.00	980.00	23.01	4.22	18.79
Clear dining room	1027.75		1027.75	19.71	42.72	19.71
Cleaning						
Dishmachine operation	759.25	399.00	360.25	14.56	7.65	6.91
Dishmachine maintenance	40.00	40.00		.77	.77	
Kitchen	161.00	161.00		3.09	3.09	
Dining room	130.00	130.00		2.49	2.49	
Pots and pans	168.00	168.00		3.22	3.22	
Laundry	80.00	80.00		1.53	1.53	
	1338.25			25.66		
Supervision	340.00	340.00			6.52	6.52
Totals	5214.25	2826.00	2388.25		100.00%	54.20%
						45.80%

TABLE 6. SUMMARY OF LABOR H

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Work area

---

Receiving and storage

Preparation

Potato

All other raw food

Range

Salad

Bake shop

Service

Counter

1

Clear dining room

1

Cleaning

Dishmachine operation

Dishmachine maintenance

Kitchen

Dining room

Pots and pans

Laundry

Supervision

Totals

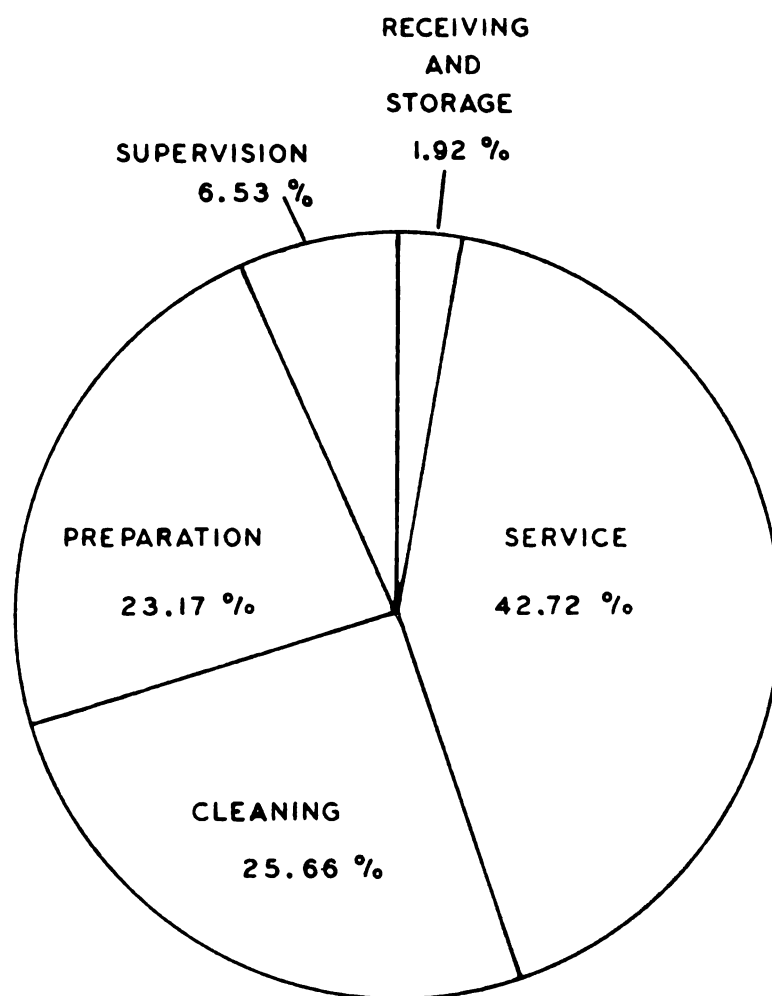


FIGURE 3. LABOR HOUR PERCENTAGES BY WORK AREA FOR  
MASON-ABBOT RESIDENCE HALL  
FEBRUARY 5 THROUGH 18, 1955

Labor time per resident per day, as shown in Table 7, totaled 26.45 minutes. By dividing this total by three, the number of meals prepared per resident per day, it was found that 8.81 minutes of labor was spent for each meal served. This figure compares favorable with previously mentioned studies in which approximately 10 minutes per meal served was reported.

#### Labor cost.

Percentages of labor costs shown in Table 8 indicated that service cost slightly less than one third of the labor dollar. Wages of part time employees in this area were 27.26% of the total labor dollar.

The preparation area accounted for 29.21% of the total labor cost. The highest paid employees were in this area, which raised the percentage of the labor dollar over the percentage of the labor hours. Part time employees were not used in this area.

The dishmachine operation costs were approximately one half of the total cleaning area cost. Full time employees accounted for 9.03% of the labor dollar in this operation. Percentages of the labor dollar spent in each major work area are shown in Figure 4.

Labor cost expressed in cents per resident, as shown in Table 7, totaled 52.95 cents per day or 17.65 cents per meal

TABLE 7. MINUTES OF LABOR AND COST PER RESIDENT PER DAY BY WORK AREA FOR FOURTEEN-DAY PERIOD FOR LASON-ABBOT RESIDENCE HALL.

Work area	Minutes of labor per resident per day	Cost per resident per day
	minutes	
Receiving and storage	.51	.0138
Preparation		
Potato	.31	.0076
All other raw food	.31	.0076
Range	2.11	.0604
Salad	1.63	.0347
Bake shop	1.77	.0444
	6.13	.1547
Service		
Counter	6.09	.0946
Clear dining room	5.21	.0736
	11.30	.1684
Cleaning		
Dishmachine operation	3.65	.0737
Dishmachine maintenance	.21	.0050
Kitchen	.02	.0161
Pots and pans	.35	.0232
Laundry	.40	.0069
Dining room	.66	.0123
	6.79	.1391
Supervision	1.72	.0535
	26.45	4.5295





TABLE 8. SUMMARY OF LABOR COSTS BY WORK AREAS AND CLASSIFICATIONS. MASON-ABBOT RESIDENCE HALL. FEBRUARY 5 THROUGH 18, 1955

Work area	CLASSIFICATION					
	total	Dollars full time	part time	total	Percentage of total cost full time	part time
Receiving and storage	163.97	146.76	17.21		2.62	2.35
Preparation						
Potato	89.60	89.60		1.43	1.43	
All other raw food	89.60	89.60		1.43	1.43	
Range	714.71	714.71		11.42	11.42	
Salad	410.20	410.20		6.55	6.55	
Bake shop	<u>524.86</u>	<u>524.86</u>		<u>8.38</u>	<u>8.38</u>	
	1828.97			29.21		
Service						
Counter	1118.20	285.20	833.00	17.86	4.55	13.31
Clear dining room	<u>873.59</u>		<u>873.59</u>	<u>13.95</u>	31.81	<u>13.95</u>
	1991.79					
Cleaning						
Dishmachine operation	871.39	565.18	306.21	13.92	9.03	4.89
Dishmachine maintenance	58.80	58.80		.94	.94	
Kitchen	189.00	189.00		3.02	3.02	
Dining room	145.80	145.80		2.33	2.33	
Pots and pans	273.88	273.88		4.37	4.37	
Laundry	<u>105.60</u>	<u>105.60</u>		<u>1.68</u>	<u>1.68</u>	
	1644.47			26.26		
Supervision	632.20	632.20		10.10	10.10	
Totals	\$6261.40	\$4231.39	\$2030.01	100.00%	67.58%	32.42%

TABLE 8. SUMMARY OF LABOR CO

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Work area

---

Receiving and storage

Preparation

Potato

All other raw food

Range

Salad

Bake shop

Service

Counter

Clear dining room

Cleaning

Dishmachine operation

Dishmachine maintenance

Kitchen

Dining room

Pots and pans

Laundry

Supervision

Totals



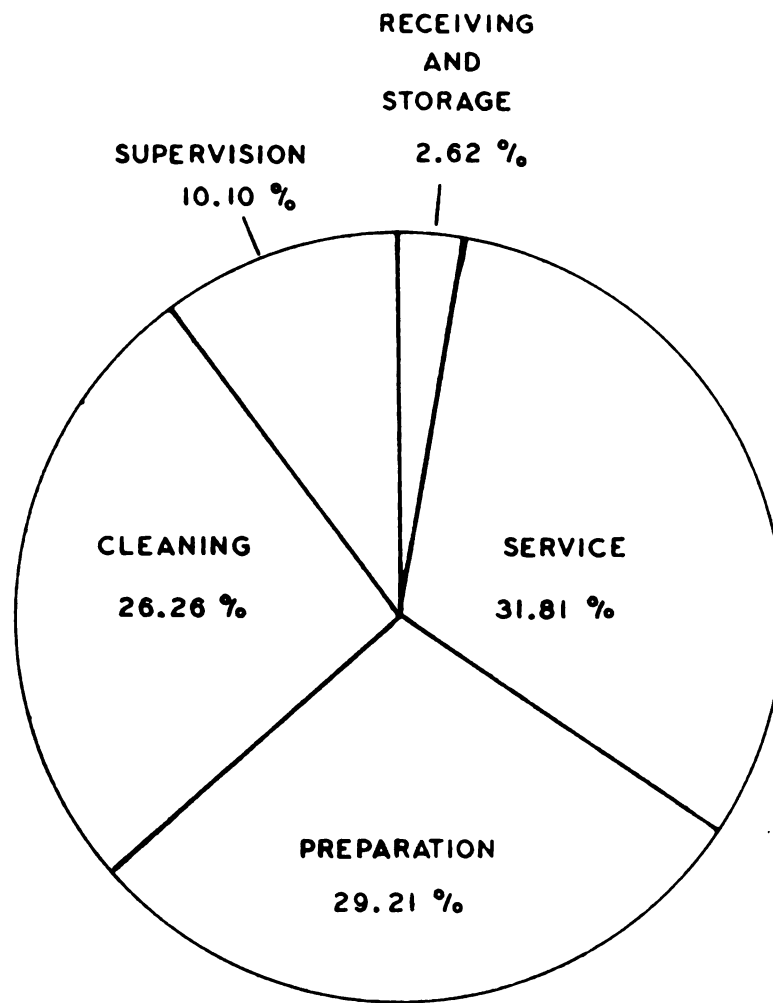


FIGURE 4. LABOR COST PERCENTAGES BY WORK AREA FOR  
MASON-ABBOT RESIDENCE HALL  
FEBRUARY 5 THROUGH 16, 1955

served. The service area cost of 16.84 cents was the most costly work area during the period of this study. The preparation area cost of 15.47 cents ranked second in area cost.

Ratios of labor cost to total income are shown in Table 9. The ratio for the operating period under study was found to be 26.32%. This is within the range stated by Bryan and Zabriskie (3). The yearly average at the time of this study was 29.32%. The fringe benefits over the year had increased the payroll 3% over the operating ratio of this short term study.

#### Comparison of Small and Large Food Service Units.

Several factors tend to influence the percentage of income spent for labor even within food services of similar types. The influence of the number of guests served upon the per capita labor costs was indicated in a study by Augustine (1). The average labor cost per meal in residence halls serving 0 to 99 guests was 9.76 cents; in residence halls serving 400 or more, the cost was 5.54 cents per meal.

The amount and adequacy of labor-saving equipment available in a food service unit bear a direct relation to the number of hours required to accomplish specific jobs. Inconvenience and waste of effort may be caused by poor placement of labor-saving devices within the work area as well as by the lack of such equipment.

TABLE 9. LABOR COST AS PERCENTAGE OF RECEIPTS. LASON-ABBOT  
RESIDENCE HALL. FEBRUARY 5 THROUGH 18, 1955

Work area	Labor cost as percentage of receipts
Receiving and storage	.69
Preparation	
Potato	.38
All other raw food	.36
Range	3.00
Salad	1.72
Bake shop	2.21
Service	
Counter	4.70
Clear dining room	3.67
Cleaning	
Dishmachine operation	3.66
Dishmachine maintenance	.25
Kitchen	.79
Dining room	.61
Pots and pans	1.15
Laundry	.45
Supervision	2.66
	26.32%

Certain labor cost will not vary directly with the volume of business (9) Fixed labor expenses are considered to be the salaries of the manager, assistants, office employees, and basic full time kitchen employees. West and Wood (9) developed a chart of labor hours needed for food service units of varying sizes. This guide was based on a study by Augustine (1) of college residence halls for women. Labor hours for table service for 200 guests were 44 hours per day, and 83 hours per day were allocated to all other food service employees. A 50% increase in residents resulted in 49.5 hours per day spent in dining room service and 100 hours in all other work areas. Cafeteria service three meals a day would not require this additional labor for an increase of 100 residents in either unit in this study. Meal preparation time for table service requires additional labor ahead of the serving period to insure prompt service, but preparation for cafeteria service can be distributed between pre-serving time and serving time. Mayo might need an additional total of 12 to 16 hours of labor in the areas of preparation and cleaning. In Mason-Abbot an increase of 100 could probably be absorbed without adding extra labor hours.

Labor hours.

In Table 10 is shown a comparison of total labor hours by work areas and by classification for the two food services considered in this study. The total percentages in the preparation areas indicated the Mary Mayo food service spent 4% more labor hours in this work area than did Mason-Abbot. The greatest difference was in the percentage spent on range preparation.

The percentage of labor hours spent by Mason-Abbot on the service area was 14.76% greater than that spent by Mayo. This difference was mainly attributable to the amount of time spent clearing the dining rooms.

In the cleaning area, Mayo spent a total of 7.19% more labor hours than did Mason-Abbot. The greatest differences were in kitchen cleaning and pots and pans.

Mayo spent 2.69% more labor hours in receiving and storage than did Mason-Abbot. The time allocated to receiving and storage includes the labor involved in receiving grill supplies at Mason-Abbot as well as supplies for the food service department under study.

The total labor hour percentages for full time employees was 3.99% more at Mason-Abbot than at Mayo. The main difference was noted in the time spent in the cleaning area and in the area of receiving and storage. The preparation area percentage



TABLE 10.

A COMPARISON OF PERCENTAGE OF TOTAL LABOR HOURS OF MARY MAYO AND MASON-ABBOT RESIDENCE HALLS.

	Percentage of total labor hours by area				Percentage of total labor hours by classification							
	Mary Mayo		Mason-Abbot		full time		part time					
					Mayo	Mason-Abbot	Mayo	Mason-Abbot				
Receiving and storage		4.61		1.92		3.66		1.53	.95	.39		
Preparation												
Potato		.55		1.15		.55		1.15				
All other raw food		2.38		1.15		2.38		1.15				
Range		14.29		7.98		9.97		7.98	4.32			
Salad		5.16		6.18		5.17		6.18				
Bake shop		<u>4.89</u>	27.27	<u>6.71</u>	23.27	<u>4.89</u>	22.95	<u>6.71</u>	23.27	4.32		
Service												
Counter		20.06		23.01		5.17		4.22	14.34	18.79		
Clear dining room		<u>7.90</u>	27.96	<u>19.71</u>	42.72	<u>5.17</u>	5.71	<u>4.22</u>	<u>7.90</u>	22.24	<u>19.71</u>	38.50
Cleaning												
Dishmachine operation		15.45		14.56		.55		7.65	14.90	6.91		
Dishmachine maintenance		1.02		.77				.77	1.02			
Kitchen		6.86		3.09		4.16		3.09	2.70			
Dining rooms		3.46		2.49		2.29		2.49	1.18			
Pots and pans		4.92		3.22		3.43		3.22	1.48			
Laundry		<u>1.14</u>	32.85	<u>1.53</u>	25.66	<u>1.14</u>	11.57	<u>1.53</u>	18.75	21.28	6.91	
Supervision		7.31		6.52		7.31		6.52				
Totals		100.00%		100.00%		51.21%		54.20%	48.79%	45.80%		

TABLE 10.

A COMPAR

	Pe
	Me
Receiving and storage	
Preparation	
Potato	
All other raw food	
Range	1
Salad	
Bake shop	
Service	
Counter	2
Clear dining room	
Cleaning	
Dishmachine operation	1
Dishmachine maintenance	
Kitchen	
Dining rooms	
Pots and pans	
Laundry	
Supervision	
Totals	



totals differed only 0.26% although the time was distributed in different ways in the two units. Time spent in supervision at Mayo was 0.79% more than at Mason-Abbot.

Distribution of part time labor hours in the two units was completely different. Both food service departments employed part time workers almost exclusively in the service area, Mayo spent almost as many part time labor hours in the cleaning area as in the service area.

The labor minutes per resident per day are compared in Table 11. Time spent by Mayo totaled 8.39 minutes more per resident per day than did the time expended by Mason-Abbot. In every work area, except service, more time was spent per resident per day at Mayo than at Mason-Abbot.

#### Labor cost.

Percentages of total labor dollar by work areas, as shown in Table 12, indicate that the receiving and storage cost at Mayo was 3.91% higher than the cost at Mason-Abbot. Total preparation area cost was 2.22% higher at Mayo. Although the range preparation cost was more at Mayo, the salad and bake shop preparation cost more at Mason-Abbot.

The service area cost at Mason-Abbot was 0.51% greater than at Mayo. This increase was incurred in the clearing of the dining rooms.

TABLE 11. A COMPARISON OF LABOR MINUTES PER RESIDENT PER DAY FOR MARY MAYO AND MASON-ABBOT RESIDENCE HALLS.

Work area	Units	
	Mary Mayo	Mason-Abbot
Receiving and storage	1.61	.51
Preparation		
Potato	.19	.31
All other raw food	.63	.31
Range	4.98	2.11
Salad	1.80	1.63
Bake shop	<u>1.70</u>	<u>1.77</u>
	9.50	6.13
Service		
Counter	6.99	6.09
Clear dining room	<u>2.75</u>	<u>5.21</u>
	9.74	11.30
Cleaning		
Dishmachine operation	5.38	3.85
Dishmachine maintenance	.35	.21
Kitchen	2.39	.82
Dining room	1.72	.85
Pots and pans	.40	.40
Laundry	<u>1.21</u>	<u>.66</u>
	11.45	7.79
Supervision	2.25	1.72
	<u>34.85</u>	<u>26.46</u>



TABLE 12.

A COMPARISON OF PERCENTAGES OF TOTAL LABOR DOLLAR FOR MARY MAYO AND MASON-ABBOT RESIDENCE HALLS.

	Percentage of total labor dollar by areas				Percentage of total labor dollar by classification						
	Mary Mayo		Mason-Abbot		full time		part time				
					Mayo	Mason-Abbot	Mayo	Mason-Abbot			
Receiving and storage		6.53		2.62		5.81		2.35	.72	.27	
Preparation											
Potato	.54		1.43		.54	1.43					
All other raw food	2.36		1.43		2.36	1.43					
Range	16.59		11.42		13.26	11.42	3.33				
Salad	5.73		6.55		5.73	6.55					
Bake shop	6.21	31.43	8.38	29.21	6.21	8.38	29.21	3.33			
Service											
Counter	17.20		17.86		6.12	4.55	11.07	13.31			
Clear dining room	6.10	23.30	13.95	31.81		4.55	6.10	17.17	13.95	27.26	
Cleaning											
Dishmachine operation	12.13		13.92		.63	9.03	11.53	4.89			
Dishmachine maintenance	.79		.94			.94	.79				
Kitchen	6.84		3.02		4.76	3.02	2.08				
Dining room	3.52		2.33		2.61	2.33	.90				
Pots and pans	3.95		4.37		2.80	4.37	1.14				
Laundry	1.32	28.55	1.68	26.26	1.32	1.68	21.37	16.43		4.89	
Supervision		10.19		10.10		10.19		10.10			
Totals		100.00%		100.00%		62.34%		67.58%		37.66%	32.42%

TABLE 12.

A COMPARISON OF PERCE

	Percentage of
	<u>Mary Mayo</u>
Receiving and storage	6
Preparation	
Potato	.54
All other raw food	2.36
Range	16.59
Salad	5.73
Bake shop	<u>6.21</u>
Service	
Counter	17.20
Clear dining room	<u>6.10</u>
Cleaning	
Dishmachine operation	12.13
Dishmachine maintenance	.79
Kitchen	6.84
Dining room	3.52
Pots and pans	3.95
Laundry	<u>1.32</u>
Supervision	
Totals	

Although the labor hours in the cleaning area were 7.12% greater at Mayo, the labor cost for this area was 2.29% greater. This was explained by the fact that part time labor used was less costly even though more time was needed to accomplish the work.

Total cost for full time employees was 5.24% higher at Mason-Abbot. The costs of various work areas indicated that the cleaning and preparation areas were more costly in Mason-Abbot; the receiving and storage and service areas were more expensive at Mayo. Part time employee cost at Mayo was higher than that at Mason-Abbot. The differences were in the areas of cleaning and service.

In Table 13 are shown the labor costs per resident per day for Mayo and Mason-Abbot. The total cost at Mayo was 11 cents higher per day, or 3.66 cents higher per meal, than that at Mason-Abbot. Work area costs indicate that Mayo spent more per resident per day in every area except service. The greatest differences were found in the preparation and receiving and storage areas.

The ratios of labor cost to total food receipts are compared in Table 14. The total labor cost percentage at Mayo was 3.41% higher than the percentage at Mason-Abbot. Every work area at Mayo, except service, consumed a greater percent of the receipts than at Mason-Abbot.

TABLE 13. A COMPARISON OF LABOR COSTS PER RESIDENT PER DAY  
 ACCORDING TO WORK AREA: MARY MAYO AND MASON-  
 ABBOT RESIDENCE HALLS.

Work area	Mary Mayo cents	Mason-Abbot cents
Receiving and storage	4.19	1.38
Preparation		
Potato	.34	.76
All other raw food	1.51	.76
Range	10.61	6.04
Salad	3.67	3.47
Pake shop	<u>3.97</u>	<u>4.44</u>
	20.10	15.47
Service		
Counter	11.00	9.46
Clear dining room	<u>3.90</u>	<u>7.38</u>
	14.90	16.84
Cleaning		
Dishmachine operation	7.75	7.37
Dishmachine maintenance	.50	.50
Kitchen	4.38	1.60
Dining room	2.52	2.32
Pots and pans	.84	.69
Laundry	<u>2.25</u>	<u>1.23</u>
	18.24	13.91
Supervision	6.52	5.35
	<u>63.95</u>	<u>52.95</u>

TABLE 14. A COMPARISON OF LABOR COST AS PERCENTAGE OF TOTAL FOOD RECEIPTS ACCORDING TO THE WORK AREA: MARY MAYO AND MASON-ABBOT RESIDENCE HALLS.

Work area	<u>Percentage of total food receipts</u>			
	<u>Mary Mayo</u>		<u>Mason-Abbot</u>	
Receiving and storage		1.94		.69
Preparation				
Potato	.16		.38	
All other raw food	.70		.38	
Range	4.93		3.00	
Salad	1.71		1.72	
Bake shop	<u>1.85</u>	9.35	<u>2.21</u>	7.69
Service				
Counter	5.11		4.79	
Clear dining room	<u>1.81</u>	6.92	<u>3.67</u>	8.37
Cleaning				
Dishmachine operation	3.61		3.66	
Dishmachine maintenance	.23		.25	
Kitchen cleaning	2.04		.79	
Dining room	1.05		.61	
Pots and pans	1.17		1.15	
Laundry	<u>.39</u>	8.49	<u>.45</u>	6.91
Supervision		<u>3.03</u>		<u>2.66</u>
		29.73		26.32



## SUMMARY AND CONCLUSION

A short term study was made of labor hours and labor costs for a fourteen-day pay period. The purpose of this study was to compare these labor hours and costs for the smallest and largest of the seven Women's Residence Halls at Michigan State University.

The main differences determined in this study may be summarized as follows:

1. Allocation of labor hours by work area was considerably different in the two food service units. Mayo spent 4% more time in the preparation area, 2.69% more hours in the area of receiving and storage, and 7.19% more time in cleaning area. An evaluation of job descriptions might make reallocation of time possible. Food procurement methods have changed since Mayo food service opened, and several factors affected the jobs in that unit. Meat cutting was formerly done in the individual units by the storeroom man. Food Stores now fabricates all meat orders. Specific duties could be assigned to the storeroom man to replace meat cutting. Frozen vegetables are now available all year. The duties of the person assigned to vegetable

preparation were potato preparation and in-season vegetable preparation. A part time employee might meet the need for some preparation and save labor time and expense. Time spent cleaning at Mayo seemed extremely high. This was explained in part by the age and condition of the equipment, and the physical layout of the kitchen. The production area consisted of small walled-off areas which resulted in poor placement of equipment and loss of time in both preparation and cleaning.

2. Distribution of labor hours by classification indicated that Mason-Abbot used a greater percentage of full time employee labor hours than Mayo used.
3. Labor hours, in terms of time spent per resident indicated that Mayo spent 0.39 minutes more per day for each resident than did Mason-Abbot. The difference was found to be in the areas of range preparation, cleaning, and receiving and storage.
4. Labor cost percentages of the total labor dollar by work area indicated that Mayo preparation cost was 2.22% more, cleaning was 2.29% more, and receiving was 3.91% more than Mason-Abbot.

Service cost Mason-Abbot 3.11 more than comparable service cost Mayo. The need for double serving counters in Mason-Abbot is questionable because each dining room has a capacity of 142 seats. If the rate of line flow is 3 to 10 persons per minute, the entire seating capacity would be filled in 7 to 12 minutes. It would be of value to do a study of labor hours needed on one well-planned counter and the resulting saving in labor costs, and compare the cost to the expenditure of equipment for a more satisfactory single counter set up.

6. Full time employees received 5.14% more of the total labor dollar at Mason-Abbot than at Mayo. The main differences were in the work areas of preparation and cleaning. Mayo spent a higher percent of the labor dollar on full time employees in the areas of service and receiving than did Mason-Abbot.
6. Mary Mayo spent 11.90 cents more per resident per day on labor than Mason-Abbot spent. All areas except service cost Mayo more per resident.
7. Labor cost percentage of total food receipts was 3.11% higher at Mary Mayo than at Mason-Abbot. Every work area except service cost Mayo a

greater percent of the total income than shown in records of Mason-Abbot.

A single study of the labor picture did not prove to be conclusive. It was not surprising to find that labor hours and costs were higher in Mayo than in Mason-Abbot. Studies previously mentioned indicated that labor time and cost decreased as meal count increased. A study of all units in this organization might more clearly indicate the effect of physical layout and equipment on labor efficiency, and indicate a numerical point at which labor may be utilized most effectively.

The need for establishing guides or standards for labor hours and labor costs within one organization, and the greater need for establishing standards applicable to general types of food service organizations, which will be helpful in training future food service operators is apparent. Meaningful measures of labor efficiency, such as minutes of labor per resident per day and cost per resident per day, could serve as tools to the operator in controlling the percentage of receipts to be spent on labor.

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APPENDIX



TABLE 15.

RECAPITULATION OF DATA FOR MARY MAYO RESIDENCE HALL FOR FOURTEEN DAY PERIOD.

Work area	Labor hours average for one day	Labor hours percent of total	Minutes of labor per resident per day	Labor cost average for one day  dollars	Labor cost percent of labor dollar	Average labor cost percent of receipts	Labor cost per resident per day  cents
Receiving and storage	7.20	4.61	1.61	11.25	6.53	1.94	4.19
Preparation							
Potato	.86	.55	.19	.92	.54	.16	.34
All other raw food	3.71	2.38	.83	4.06	2.36	.70	1.51
Range	22.32	14.29	4.98	28.55	16.59	4.93	10.61
Salad	8.07	5.16	1.80	9.86	5.73	1.71	3.67
Bake shop	7.64	4.89	1.70	10.68	6.21	1.85	3.97
Service							
Counter	31.34	20.06	6.99	29.58	17.20	5.11	11.00
Clear dining room	12.34	7.90	2.75	10.49	6.10	1.81	3.90
Cleaning							
Dishmachine operation	24.14	15.45	5.38	20.87	12.13	3.61	7.75
Dishmachine maintenance	1.59	1.02	.35	1.35	.79	.23	.50
Kitchen	10.71	6.86	2.39	11.78	6.84	2.04	4.38
Dining room	5.41	3.46	1.72	6.05	3.52	1.05	2.52
Pots and pans	7.68	4.92	.40	6.79	3.95	1.17	.84
Laundry	1.79	1.14	1.21	2.27	1.32	.39	2.25
Supervision	11.43	7.31	2.55	17.54	10.19	3.03	6.52
	156.23	100.00	34.85	\$172.04	100.00	29.73%	63.95



TABLE 15.

## RECAPITULATI

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Work area

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Receiving and storage

Preparation

Potato

All other raw food

Range

Salad

Bake shop

Service

Counter

Clear dining room

Cleaning

Dishmachine operation

Dishmachine maintenance

Kitchen

Dining room

Pots and pans

Laundry

Supervision

---

1



TABLE 16.

RECAPITULATION OF DATA FOR MASON-ABBOT RESIDENCE HALL FOR FOURTEEN-DAY PERIOD.

Work area	Labor hours average for one day	Labor hours percent of total	Minutes of labor per resident per day	Labor cost average for one day  dollars	Labor cost percent of labor dollars	Average labor cost percent of receipts	Labor cost per resident per day  cents
Receiving and storage	7.16	1.92	.51	11.71	2.62	.69	1.38
Preparation							
Potato	4.28	1.15	.31	6.40	1.43	.38	.76
All other raw food	4.28	1.15	.31	6.40	1.43	.38	.76
Range	29.72	7.98	2.11	51.05	11.42	3.00	6.04
Salad	23.00	6.18	1.63	29.30	6.55	1.72	3.47
Bake shop	25.00	6.71	1.77	37.49	8.38	2.21	4.44
Service							
Counter	85.71	23.01	6.09	79.87	17.81	4.70	9.46
Clear dining room	73.41	19.71	5.21	62.40	13.95	3.67	7.38
Cleaning							
Dishmachine operation	54.23	14.56	3.85	62.24	13.92	3.66	7.37
Dishmachine maintenance	2.86	.77	.21	4.20	.94	.25	.50
Kitchen	11.50	3.09	.82	13.50	3.02	.79	1.60
Dining room	9.29	2.49	.85	10.42	2.33	.61	2.32
Pots and pans	12.00	3.22	.40	19.56	4.37	1.15	.89
Laundry	5.71	1.53	.66	7.54	1.68	.45	1.23
Supervision	24.29	6.52	1.72	45.16	10.10	2.66	5.35
	372.44	100.00	26.46	\$447.24	100.00	26.32%	52.95

TABLE 16.

## RECAPITULAT

---

Work area

---

Receiving and storage

Preparation

Potato

All other raw food

Range

Salad

Bake shop

Service

Counter

Clear dining room

Cleaning

Dishmachine operation

Dishmachine maintenance

Kitchen

Dining room

Pots and pans

Laundry

Supervision





MARY MAYO - HOURS  
WORK SHEET 1

LABOR HOURS BY CLASSIFICATION AND WORK AREA FOR MARY MAYO RESIDENCE HALL  
FEBRUARY 5 THROUGH 18, 1955

	Preparation					Service					Cleaning					
	Total hours fourteen days	Receiv- ing and storage	Potato prepa- ration	All other raw food prepa- ration	Range	Salad room	Bake shop	Counter	Clear dining room	Dish- machine operation	Dish- machine cleaning	Kitchen clean- ing	Dining room clean- ing	Pots and pans	Laun- dry	Super- vision
BE	80.00				44.00	36.00										
BL	80.00				80.00											
DS	80.00		10.00	40.00	4.00			10.00				16.00				
EL	80.00	80.00														
EG	80.00				80.00											
GT	80.00							10.00		10.00			45.00		15.00	
GJ	80.00		2.00	12.00	10.00	2.00	27.00	15.00		2.00		3.00	5.00		2.00	
HS	80.00											72.00			8.00	
JM	80.00							5.00						75.00		
RB	80.00							80.00								
SC	80.00															80.00
SB	80.00					75.00		5.00								
WG	80.00						80.00									
PG	80.00															80.00
Full time employee total	1120.00	80.00	12.00	52.00	218.00	113.00	107.00	125.00		12.00		91.00	50.00	75.00	25.00	160.00
Student employee total	1067.25	20.75			94.50			313.75	172.75	326.00	22.25	59.00	25.75	32.50		
Grand Total	2187.25	100.75	12.00	52.00	312.50	113.00	107.00	438.75	172.75	338.00	22.25	150.00	75.75	107.50	25.00	160.00

MARY MAYO - HOURS  
WORK SHEET 1

	Total hours fourteen days	Receiv- ing and storage	Pot pre rat
BE	80.00		
BL	80.00		
DS	80.00		10.
EL	80.00	80.00	
EG	80.00		
GT	80.00		
GJ	80.00		2.
HS	80.00		
JM	80.00		
RB	80.00		
SC	80.00		
SB	80.00		
WG	80.00		
PG	80.00		
Full time employee total	1120.00	80.00	12.
Student employee total	1067.25	20.75	
Grand Total	2187.25	100.75	12.





MASON-ABBOT - HOURS  
WORK SHEET 2

LABOR HOURS BY CLASSIFICATION AND WORK AREA FOR MASON-ABBOT RESIDENCE HALL  
FEBRUARY 5 THROUGH 18, 1955

[illegible]

MASON-ABBOT - HOURS  
WORK SHEET 2

	Total hours fourteen days	Receiv- ing and storage	Po pr ra
BJ	80.00		
BL	80.00		
BN	40.00		
CR <sub>1</sub>	80.00		
CR <sub>2</sub>	80.00		40
DV	80.00		
DT	80.00		
DRG	80.00		
DG	80.00		
FP <sub>1</sub>	56.00		
FP <sub>2</sub>	80.00		20
FG	80.00		
HC	80.00		
HT	80.00		
HA	80.00		
HL	50.00		
MM	80.00		
McF	80.00		
NF	80.00		
NH	80.00		
RB	40.00		
RE	80.00		
RG	80.00		
SV	80.00		
SH	80.00		
SL	80.00		
SI	80.00		
TF	80.00		
VNL	80.00		
AP	80.00		
CF	80.00		
CA	80.00	80.00	
LW	80.00		





MASON-ABBOT - HOURS (cont.)  
 WORK SHEET 2 (cont.)

	Preparation					Service					Cleaning					
	Total hours fourteen days	Receiv- ing and storage	Potato prepa- ration	All other raw feed prepa- ration	Range	Salad room	Bake shop	Counter	Clear dining room	Dish- machine operation	Dish- machine cleaning	Kitchen clean- ing	Dining room clean- ing	Pots and pans	Laun- dry	Super- vision
PR	80.00				80.00											
AS	80.00						80.00									
MA	80.00															80.00
MG	80.00															80.00
Full time employee total	2826.00	80.00	60.00	60.00	416.00	322.00	350.00	220.00		399.00	40.00	161.00	130.00	168.00	80.00	340.00
Student employee total	2388.25	20.25						980.00	1027.75	360.25						
Grand total	5214.25	100.25	60.00	60.00	416.00	322.00	350.00	1200.00	1027.75	759.25	40.00	161.00	130.00	168.00	80.00	340.00

MASON-ABBOT - HOURS (cont.)  
 WORK SHEET 2 (cont.)

	Total hours fourteen days	Receiv- ing and storage	Pot pre rat
PR	80.00		
AS	80.00		
MA	80.00		
MG	80.00		
Full time employee total	2826.00	80.00	60
Student employee total	2388.25	20.25	
Grand total	5214.25	100.25	60





MARY MAYO - WAGES  
WORK SHEET 3

LABOR COSTS BY CLASSIFICATION AND WORK AREA FOR MARY MAYO RESIDENCE HALL  
FEBRUARY 5 THROUGH 18, 1955

	Preparation					Service					Cleaning					
	Total wages fourteen days	Receiv- ing and storage	Potato prepa- ration	All other raw feed prepa- ration	Range	Salad room	Bake shop	Counter	Clear dining room	Dish- machine operation	Dish- machine cleaning	Kitchen clean- ing	Dining room clean- ing	Pots and pans	Laun- dry	Super- vision
BE	92.80				51.04	41.76										
BL	132.00				132.00											
DS	82.40		10.30	41.20	4.12			10.30				16.48				
EL	139.84	139.84														
EG	119.20				119.20											
GT	100.00							12.50		12.50			56.25		18.75	
GJ	104.00		2.60	15.60	13.00	2.60	35.10	19.50		2.60		3.90	6.50		2.60	
HS	104.80											94.32			10.48	
JM	72.00							4.50						67.50		
RB	94.40							94.40								
SC	107.08															107.08
SB	100.00					93.75		6.25								
WG	114.40						114.40									
PG	138.46															138.46
Student employee total	1501.38	139.84	12.90	56.80	319.36	138.11	149.50	147.45		15.10		114.70	62.75	67.50	31.83	245.54
	907.16	17.64			80.33			266.68	146.84	277.10	18.91	50.15	21.89	27.62		
Grand total	2408.54	157.48	12.90	56.80	399.69	138.11	149.50	414.13	146.84	292.20	18.91	164.85	84.64	95.12	31.83	245.54

MARY MAYO - WAGES  
WORK SHEET 3

	Total wages fourteen days	Receiv- ing and storage	Per pr ra
BE	92.80		
BL	132.00		
DS	82.40		10
EL	139.84	139.84	
EG	119.20		
CT	100.00		
GJ	104.00		2
HS	104.80		
JM	72.00		
RB	94.40		
SC	107.08		
SB	100.00		
WG	114.40		
PG	138.46		
Student employee total	1501.38	139.84	12
	907.16	17.64	
Grand total	2408.54	157.48	12





MASON-ABBOT - WAGES  
WORK SHEET 4

LABOR COSTS BY CLASSIFICATION AND WORK AREA FOR MASON-ABBOT RESIDENCE HALL  
FEBRUARY 5 THROUGH 18, 1955

[illegible]

MASON-ABBOT - WAGES  
WORK SHEET 4

	Total wages fourteen days	Receiv- ing and storage	Pot pre rat
BJ	105.60		
BL	99.20		
BN	34.00		
CR <sub>1</sub>	87.20		
CR <sub>2</sub>	122.40		61.
DV	105.60		
DT	116.80		
DRG	105.60		
DG	104.00		
FP <sub>1</sub>	62.16		
FP <sub>2</sub>	113.60		28.
FG	136.00		
HC	120.80		
HT	99.20		
HA	116.80		
HL	64.50		
MM	104.00		
McF	136.00		
NF	104.00		
NH	104.00		
RB	52.40		
RE	108.80		
RG	87.20		
SV	101.60		
SH	112.80		
SL	143.20		
SI	116.00		
TF	122.00		
VNL	113.60		
AP	170.31		
CF	170.31		
CA	146.76	146.76	







MASON-ABBOT - WAGES (cont.)  
 WORK SHEET 4 (cont.)

LABOR COSTS BY CLASSIFICATION AND WORK AREA FOR MASON-ABBOT RESIDENCE HALL  
 FEBRUARY 5 THROUGH 18, 1955

	Preparation					Service					Cleaning					
	Total wages fourteen days	Receiv- ing and storage	Potato prepa- ration	All other raw food prepa- ration	Range	Salad room	Bake shop	Counter	Clear dining room	Dish- machine operation	Dish- machine cleaning	Kitchen clean- ing	Dining room clean- ing	Pets and pans	Laun- dry	Super- vision
LW	135.69				135.69											
PR	162.46						162.46									
AS	150.00															150.00
MA	200.00															200.00
MG	96.80							48.40			24.20					24.20
Student employees total	4231.39	146.76	89.60	89.60	714.71	410.20	524.86	285.20		565.18	58.80	189.00	145.80	273.88	105.60	632.20
	2030.01	17.21						833.00	873.59	306.21						
Grand total	6261.40	163.97	89.60	89.60	714.71	410.20	524.86	1118.20	873.59	871.39	58.80	189.00	145.80	273.88	105.60	632.20

MASON-ABBOT - WAGES (cont.)  
 WORK SHEET 4 (cont.)

	Total wages fourteen days	Receiv- ing and storage	Pot pre rat
LW	135.69		
PR	162.46		
AS	150.00		
MA	200.00		
MG	96.80		
	4231.39	146.76	89.
Student employee total	2030.01	17.21	
Grand total	6261.40	163.97	89

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