PERSONNEL TESTING AND TRAINING ESSENTIALS FOR PROCESSING EMPLOYEES OF DAIRY PLANTS

Thesis for the Degree of M. S.
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Arnold F. Leestma

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PERSONNEL TESTING AND TRAINING ESSENTIALS FOR PROCESSING EMPLOYEES OF DAIRY PLANTS

By

ARNOLD F. LEESTMA

AN ABSTRACT

Submitted to the College of Agriculture
Michigan State University of Agriculture and
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of the requirements for the degree of

MASTER OF SCIENCE

Department of Dairy

1959

Approved T. L. Hedrick

ABSTRACT ARNOLD F. LEESTMA

Objectives of this study were to consider the application of selection tests to new dairy processing employees, to compare test scores with supervisor ratings and to recommend a training program guide specifically for medium and small size dairy plants.

Forty-two (28.51%) replies were received to a questionnaire sent to dairy plants requesting information on their interest and need in organized employee training. Thirty-five (83.33%) dairies expressed a need for an organized training program but 76.19% did not have an organized training program for employees. The results indicated that the preparation of a training program for new and regular employees would be valuable for the small and medium size plants.

The Wonderlic Personnel Test was chosen as the most appropriate for testing new dairy plant employees and was used to test 254 dairy personnel. Test scores were classified according to the nature of the work. The same employees were also rated as objectively as possible by their supervisors for quality of work, volume of work, capacity to develop, initiative, work attitude, attitude toward others and knowledge of work. The correlation between the test score and the rating was 0.167, which was significantly different from zero at the one per cent level.

Job classifications and corresponding minimum test scores were respectively: superintendents--26.3, dispatchers--25.6, part time students--24.9, foremen--24.2, filler operators-paper--21.3, mix

makers--21.2, laboratory workers--20.8, separator operators--20.8, swingmen--20.3, route drivers-retail--19.4, load out workers--19.4, filler operators-can--19.2, filler operators-glass--18.5, semi and tank drivers--18.5, can washer operators--17.8, butter makers--17.8, HTST operators--17.3, vacuum pan and drier operators--16.5, route drivers-wholesale--16.2, maintenance workers--16.0, freezer operators--15.9, receiving room workers--15.6, cheese packagers--12.4, general plant workers--12.3, cheese makers--11.7, cooler workers--11.2 and bottle washers--10.1.

The recommended training program consisted of two parts, (a) on-the-job training for new employees and (b) informational training for regular employees. The on-the-job training program consisted of the job statement, employee selection, instructor selection, orientation and induction, demonstration and explanation of each step in the job statement, encouragement and the follow-up process.

The informational program consisted of an elementary technical dairy outline with suggested reading material arranged for convenient use. Subjects included were properties of milk and milk products, microorganisms in dairy products, milk and related products, ice cream products, quality and composition control, housekeeping and cleaning, care and maintenance of dairy equipment, dairy arithmetic and accident prevention. Processing information included efficiency and losses, pasteurization systems and methods, and dairy processing equipment.

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INTRODUCTION

The need for organized training of dairy plant employees has never been greater in small and medium size dairy plants. The necessity of increased efficiency for survival, high labor turnover, strict sanitation and housekeeping requirements have resulted in an increased interest in organized job training.

Large dairy plants have recognized the value of an organized training program for both the new and present employees. However, the medium and small size plants, in general, have neglected this important phase along with testing programs for the selection of new employees.

Dooley (12) stated, "Training is not something that is done once to new employees--it is used continuously in every well-run establishment. Every time you get someone to do work the way you want it done, you are training. Every time you give directions or discuss a procedure you are training."

No organization has the choice between training and not training. Most new employees have to be trained, and present employees often must learn new skills and processes. The choice is between haphazard or misdirected training and carefully planned organized training.

With the mounting labor costs and decreased profit margins that have been demonstrated in the dairy industry recently, a plant manager can no longer afford to neglect the "out of pocket cost" involved in training an employee. Therefore, a training program that is sponsored by management, planned in advance, developed

for a specific purpose and taught by competent personnel is necessary.

Many new dairy processes and techniques have been developed in recent years. Men must be trained to operate new equipment and to do so haphazardly may result in losing the initial savings contemplated.

A voluminous, detailed and complicated training program would probably remain on the busy manager's desk unused, but a simple outline of the essentials necessary in an organized training program might possibly be useful.

Training programs have been adopted by practically every major industry. The dairy industry likewise has training programs. To develop a training program for nonsupervisory employees, many of the factors used in established training programs of both the dairy and other industries must be considered.

During the process of selection, prospective employees are examined and separated into two classes: those offered employment and those who are not hired. Selection is closely associated with job specification, which includes the physical, mental and educational qualities required of an employee. A selection test that is known to be effective as a measure of employee potentiality can be used to compare an individual's capabilities for the requirements of a specific job.

The objectives of this study are to investigate selection tests, apply the one most suitable and develop a training program guide specifically for small and medium size dairy plants.

REVIEW OF LITERATURE

Job training has been in existence for many years. The writers of the Bible mentioned early training methods in the Old Testament. Even Christ participated in a training program with his father, Joseph. The training in early times was mostly apprentice training.

Training methods changed little until the Second World War. To meet increased production requirements with a shortage of manpower, industry sought a method of training employees quickly and efficiently. The fundamentals necessary to accomplish this were compiled during the war by the War Manpower Commission.

The war effort and labor shortage caused a decrease in the time allotted for a new employee to attain full production. Not only was training necessary to teach beginners, but as Dutton (14) stated, "Training was necessary to improve performance, prepare employees for different jobs and keep supervisors and staff informed of new production methods." Dutton also stated that a man who has to pick up his training by haphazard assistance from men who are little if any better informed than himself is beset by insecurities. He learns to "get by."

Employee Selection

One of the first considerations in an organized training program is selecting new employees to be trained. An early record of selection is found in the Bible. The book of Judges 7:1-7 describes

the selection of Israelite warriors for a war with the Midianites. Gideon's first procedure was to select those who were afraid from those who wanted to fight. His second procedure was to bring the men to a river to drink water. "And the Lord said unto Gideon, everyone that lappeth of the water with his tongue, as a dog lappeth, him shalt thou set by himself; likewise everyone that boweth down upon his knees to drink." Gideon selected the men who lapped the water and kept their eyes on the enemy shore as those who would be the warriors.

Reitell (23) listed the fundamentals of a selection program as:

1. Job Rating.
2. Job Requirements.
3. Attracting Applicants.
4. The Application Form.
5. Testing.
6. Health Requirements.
7. Main Interview.
8. Placement.

A brief analysis of Reitell's job requirements are listed in the following chart.

Job Requirements Chart

Operation----------

Date----------

Department----------

Prepared by----------

Summary of Duties

Educational Requirements

Training Required

Skill Required

Versatility Required

Job Knowledge Required

Responsibility Involved

Working Conditions

By using a chart such as this for each job in the dairy plant, the selection of an employee to fit the job requirements could be simplified.

Application For Employment

Part of the selection procedure includes the application blank. According to Pigors and Myers (21) the application blank should be designed to include the following information:

1. Should show the candidate's ability to spell, write legibly,

and to answer factual questions rapidly and accurately.

2. Should give the employer pertinent information on the prospective employee's personal qualifications before the main interview begins.
3. Should be brief and contain items that according to company experience, are correlated with job success.

Metropolitan Life Insurance Company's booklet (6) stated that, "Frequently the applicant's first obstacle to feeling at ease is the application blank, which seems a formidable inquisition rather than a friendly inquiry."

Personnel Tests

Personnel tests are known as mental tests, intelligence tests or general psychology tests and can be used as a definite part of the selection program. Robertson (24) stated, "Psychology tests are not some kind of infallible touchstone that can forecast a man's probabilities for success on a job without further ado; it is still necessary to make the effort to get to know the man or women thoroughly through personal attention and interest."

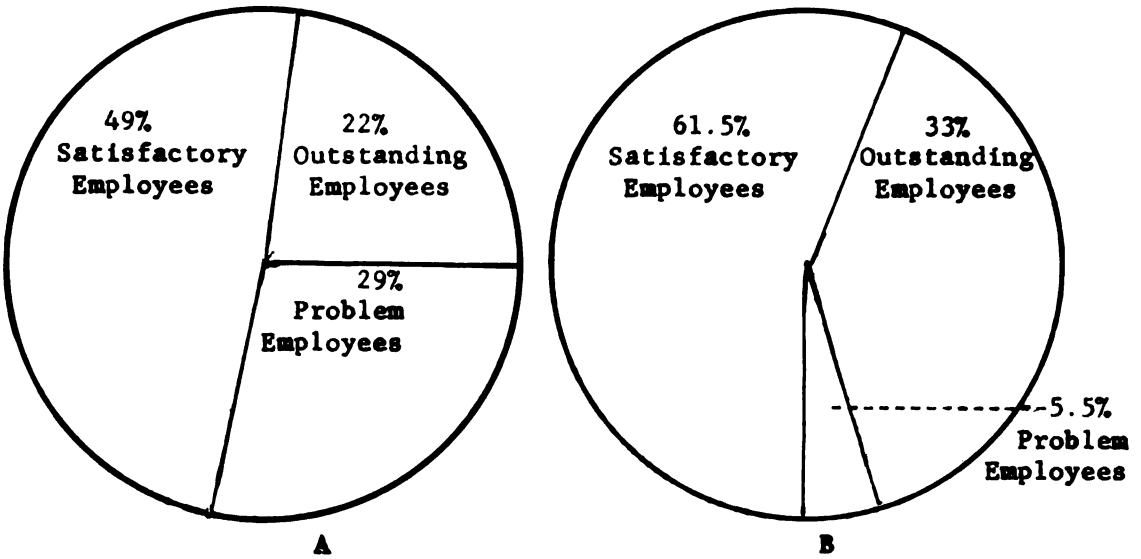
Watkins et al. (28) mentioned that intelligence tests attempt to measure the general mental capacities of the individual, to determine whether or not a man has the capacity to learn certain tasks regardless of actual experience or training. He further stated that the results of intelligence tests given to the U. S. Army during the First World War by trained psychologists led to the general conclusion that the rating which a man earned furnished a fairly reliable index to his ability to learn, to think quickly

and accurately, to analyze a situation, to maintain a state of mental alertness, and to understand and follow instructions, all of which are fundamental elements in general intelligence.

Morrow (20) said that it is fully as important to find people with below-average mental ability for low level jobs as it is to find those with higher intelligence for the more complicated positions. A large percentage of labor turnover on routine jobs is the direct result of placing men and women with too much intelligence on those jobs. These people who find too little to challenge their imagination and ability grow dissatisfied and bored with their task and eventually quit.

Watkins et al. (28) also mentioned that mental tests are not adequate as a sole measurement of probable effectiveness in industry and business. Efficiency and success are partly dependent upon factors other than intelligence.

Pond (22) cited the case of Los Angeles Gas and Electric Corporation where 594 persons hired without being given intelligence tests were compared with 108 persons hired after intelligence testing was initiated. Their conclusions were: (1) "Intelligence tests can be applied to a service organization in such a way as to multiply chances of successful selection. Scores in these tests do not tab and earmark applicants who will invariably succeed, but selections made within favorable score ranges increased the percentages of success. (2) Intelligence test findings will rule out some applicants who conceivably might succeed. The same statement could be made regarding any method of selection now in use. Not by any means infallible, test findings merely point to greater or less probability of success in given cases."



Employees hired prior to the testing program		Employees selected on basis of test rating
	Test	108 persons
	Non-Test	594 persons
	Total Hirings	702 persons

Figure I

Comparison of Non-Test and Test Employees by the Los Angeles Gas and Electric Corporation

Watkins et al. (28) mentioned a large clothing company who tested several hundred of its employees. From the group tested 290 cases were taken at random and were investigated to find out whether ability as shown in the mental test had any relation to productivity at the machines. The company concluded that the use of mental tests, although only a partial measurement, is the quickest, most accurate and most economical method of prophesying future skill at machines and of placing operators at types of

work most suited to their ability.

Hill (18) stated, "The most widely used mental alertness test in Canadian companies is the Wonderlic Personnel Test. It is a revision of the Otis test, one of the standard intelligence tests, but has been adapted to fit adult business and industrial situations and had lost the school flavor that clings to many intelligence tests."

Tiffin (26) mentioned that the Wonderlic Personnel Test was particularly adapted to the needs of business and industry. The word "personnel" rather than mental ability or intelligence was used in the title to avoid the negative reaction that many applicants and employees have to a test that deals with mental ability.

Wonderlic and Hovland (29) stated, "The Wonderlic Personnel Test requires only twelve minutes, is self-administering, easy to score, reliable, valid, and useful in a number of industrial situations. The short time interval for administration of the test does not make the test just a matter of speed. This is indicated by the high correlation obtained between limited and unlimited testing time. Correlations between the Wonderlic Personnel Test and the Otis Test are from $\pm$ .81 to $\pm$ .87."

Wonderlic (30) stated that the Wonderlic Personnel Test was constructed and patterned after a carefully developed formula and that all of the individual cases used in the test construction were either applying for positions or were employed in various types of business organizations. He further stated, "No other available test has been established on such a large

number of cases obtained on adults in industrial situations. More than 30,000 adults were examined in constructing the various forms." By other forms, Wonderlic referred to test forms D, E and F, which are variations of the original Wonderlic Test. He also listed minimum scores for personnel of various occupations. These were:

Managers	28
Plant Superintendent	28
Foreman	25
Production Control Men	25
Private Secretary	25
Stenographers	22
Office Clerks	22
Salesmen (Non-technical)	22
Routine Clerical workers	20
Skilled mechanics	18
Lead men--sub-foremen	18
General factory help--Grade A	15
Routine salesmen	15
General factory help--Grade B	12
Unskilled Labor	8
Janitors	8

Merit Rating

A mental test used in industry should be standardized to determine the passing scores necessary for successful job performance. This is generally done by comparing individual test scores with some type of merit rating. The merit rating is usually determined by measuring the degree of success an employee achieves at his job.

Bittner (10) had difficulty classifying the rating forms now in use by the various food chains, but mentioned that there were three basic forms available to industry. These were:

"1. Rating scale: general traits like 'dependability' are defined and the rater is asked to mark on a scale the degree to which the person possesses this trait.

2. Behavior check list: a number of statements of specific activities involved in doing the job are given and the rater is asked to check simply whether the person does them or he may be asked to estimate how well the person does them.

3. Ranking: the rater is asked to list his people in order from the best to the poorest on over-all ability or a specific characteristic."

Bayer (9) in his thesis, concluded that of these three basic types of rating plans, the food industry generally use the basic construction of the rating scale;however there are numerous variations of style and design of the rating form.

Orientation

After selection a new worker usually enters an orientation program. In a manual prepared by the Koppers Company (1) the aim of orientation is stated as follows: "The impressionable period of orientation offers an excellent opportunity to lay a solid foundation for developing satisfied and loyal employees. The treatment and the training new employees receive at this time are perhaps the most important factors in their feeling and attitude toward the company and their future job success. This is the time to establish the correct relationship with employees and get them off to the right start. Almost all new employees are rather emotionally disturbed, subject to nervousness, apt to jump to conclusions and obtain false impressions, but they are open to constructive ideas and suggestions. It is very important to let them know exactly where they stand and help them become an asset to the company and feel that they are part of it." A supervisor in the Koppers organization said, "The more time I spend with a new man during his first week on the job in making him feel at home, the less time I have to spend on him the rest of the time he is on the job. The more goodwill I can build in him during the first week when the building is easy, the less supervision I have to give him later."

The Koppers manual listed 24 subjects that should be included in an orientation program. These were:

"1. Department organization (How the employee fits into the organization).

2. Importance of work of department.

3. Importance of the employee's work.

4. Tour of the department and introduction to fellow workers.

5. Department regulations affecting the employee, (telephone, absenteeism, lateness, safety, overtime, sickness, etc.).

6. Location of various services, (eating facilities, rest rooms, first aid, parking, etc.).

7. Bulletin boards (location).

8. Work week (hours of work, starting time, quitting time, lunch period and overtime work).

9. Pay day (when, where and how pay is figured).

10. Vacations and holidays.

11. Time cards.

12. Merit rating and merit increases.

13. Union relationships.

14. Employee activities.

15. Staff relationships.

16. Promotional opportunities.

17. Transfers.

18. How grievances are handled.

19. Expense sheets, where applicable.

20. Probationary period (how long and standards by which employee will be judged).

21. Job instruction.

22. Introduction to job steward.

23. Continuous orientation through informal conversation and meetings.

24. Instruction of older employees on orienting new employees. (Every employee who comes into contact with the new employee can perform an important part in making the new member of the organization feel welcome.)"

Koppers manual also suggested a check list to be filled in by the new employee. The list contained questions based upon the previous list of twenty-four factors. This check list is used as a tool to better acquaint the new worker with the organization.

A booklet prepared by the Metropolitan Life Insurance Company (6) included information on what a new employee should receive from an orientation program: "Orientation should give a new employee confidence in himself and in the company and make him feel that the company is interested in him and will treat him fairly, that his fellow workers and his supervisor are glad to have him in their department, and that he will like his job and have a chance to get ahead."

The booklet also listed the objectives of the orientation program of the New England Telephone and Telegraph Company for telephone operators as:

1. Provide a background of knowledge as it relates to the business generally, "To make her job worth-while."

2. Help her in measuring up to the job.

3. Help her get along well with her associates.

4. Make the employee feel that she has a real place in the business.

5. To give her stability in her job.

Induction

Milk Industry Foundation (5) used a breakdown of orientation which included Induction and Indoctrination. They listed "The earmarks of a sound induction program" as:

"1. It must receive the strongest support of top management.

2. It must be of sufficient duration to accomplish its objectives, but at the same time not be prohibitively costly in time or manpower.

3. It must proceed according to an orderly plan, carefully organized in advance, and be tailored to the needs of the particular company.

4. It must aim to develop the right attitude as well as to impart information. It must seek to develop pride in the job.

5. It should stress and re-stress the necessity for doing the job safely.

6. It should provide information about the milk industry as well as about one particular company.

7. It should include the presentation of written material about the company and its importance.

8. It should provide a means of determining that the information has been absorbed.

9. It should include a comprehensive check list. When all the items have been checked, the list should be signed by both the trainee and the supervisor or other responsible individual.
10. It must be interesting, stimulating and challenging."

Pigors and Myers (21) stated that the whole induction program should give the new employee a sense of belonging to the organization. They also stated a good training program should include the following six functions:

1. The employee should be given information about the organization, its policies and regulations. This should be done in such a way as to make him feel at home quickly.
2. The new employee should be instructed in the requirements of the specific job that he is to perform, so that he can meet standards for quality and quantity production.
3. Training enables employees to acquire more and greater skills, thus increasing their versatility for transfers and their qualifications for promotion.
4. Properly trained employees have less accidents and defective work damage to equipment.
5. Helps the employee to adjust to new processes that are introduced from time to time.
6. Good training reduces dissatisfaction, absenteeism and turnover because it helps employees to use to the fullest extent their individual capacities.

Dooley (12) said, "Training is a management tool whereby

specific people are given help in acquiring definite skill in overcoming underlying causes of problems that currently exist or that are anticipated by management." He further stated that training, to be effective, must be accepted by the management as an integral part of production procedure, and the line supervision in the plant must be responsible for training the men they supervise.

In a manual published by Allis-Chalmers Company (15) five reasons were listed for establishing an organized training program.

1. Lower costs.
2. Increased production.
3. Improved quality.
4. Savings in expended effort.
5. Reduction in accidents.

Training Programs and Methods

Baker (8) listed three types of training, vestibule, apprentice and on-the-job. Pigors and Myers (21) stated, "Apprentice training is desirable in industries like the metal trades which require a constant flow of new employees who expect to become all-round craftsmen. Since the training program is long and requires continual supervision this method of training is expensive. Standards are rigid and are defined in an apprenticeship agreement that in unionized firms involves union acceptance. Furthermore, after the long period of apprenticeship is completed there is no assurance that the man will remain with the firm. Vestibule training is used primarily when large numbers of workers

must be trained quickly as during wartime although it is also helpful as a preliminary to on-the-job training. New workers are trained for specific jobs on special machines in a separate part of the plant."

Yoder (31) stated, "Job training simply places the employee in the workroom and provides supervision while he learns to master the operations involved. Generally such training provides supervision in some sort of sponsorship arrangement whereby an older employee or supervisor is charged with responsibility for instructing the newcomer and assisting him in mastering the job."

An Esso Training Center publication (3) listed three general methods of presenting information to employees. These are different from Baker's (8) list. Esso listed the informational, instructional, and conference methods. The informational method was used for a group with little experience, a large group to be taught at one time or when some general information on new policies, methods and procedures was to be explained. Motion pictures, film strips, slides, charts, drawings and printed materials were often used in the informational method of teaching. The informational method was usually known as a "pouring in" process.

The second method listed by Esso, called the instructional method was essentially an on-the-job training program. The process sometimes called a "learning by doing process " was given under the guidance of a qualified instructor

The third or conference method was often used in the higher echelons of management. This should be a planned session and not

a "glorified bull session." The program should be outlined, objectives determined and some method for evaluating the results outlined.

Job Descriptions

One of the first steps in a training program was to define the job for which a person was to be trained. This process was called by Watkins et. al. (28) a job description and a job specification. They stated, "Job descriptions are standardized statements of the component elements on the job, the tools, equipment, and materials used; the special training, skills, aptitudes, judgments and decisions required; the speeds and hazards involved; and the conditions under which the work is performed." He also mentioned that a job specification shows the kind of person required to perform the job successfully.

Laws (19) stated that every job has two parts: (1) the job description which is the what, how and why of the job, and (2) the job specification which is the degree to which the various elements are found.

Dormuth (13) stated that the effectiveness of an on-the-job training program depends upon the attention given to careful planning and supervision "Merely to put a man on a new job and expect him to become a skilled worker without the benefit of indoctrination, orientation and supervised training cannot be condoned." He also mentioned that in planning a clean-up man's job training, the foreman must have a clear cut idea of what he is going to tell and show the employee, in what sequence, how much

at one time and what points he is going to emphasize.

Clark Equipment Company's training manual (7) listed the following method of job breakdown:

1 List all the steps in the operation (each thing that must be done).

2. Make sure the method is the best available.

3. Study each step, identify and make a list of the key points (that is the skills to be developed and information to be acquired).

4. Simplify the job, whenever possible, by checking off points which can be deferred until the new man begins to get the feel of the job.

5. Determine the order in which skills are to be developed and information imparted and prepare a plan for training.

Training Procedure

The New York Central System published a booklet entitled, "Be A Better Boss" (2). The booklet listed the nine essential steps in a training program for new employees as follows:

1. Plan thoroughly.

2. Make the proper approach to the new employee.

3. Explain the job thoroughly.

4. Show the employee how to do the job.

5. Constructively question the employee (check up if someone else is doing the teaching).

6. Let the employee try to do the job.

7. Make a final inspection.

8. Follow up to see how the employee is progressing.

9. Check on a way to teach better next time.

Gagnan and Verney (16) selected nine important steps in an organized training program.

1. Establish the need for a training program.

2. Determine the objectives of the program.

3. Determine the proper method.

4. Develop the program.

5. Sell the program to management.

6. Select and train the people who are to do the training.

7. Schedule the training program.

8. Follow-up.

9. Evaluate the results.

Dietz (11) listed several methods that could be used to help establish an organized training program. His listing could be useful for both new and existing training programs. The methods were:

"1. Get the supervisors and workers to tell about their current problems.

2. Uncover problems by reviewing the performance, cost turnover and accident records.

3. Anticipate problems resulting from changes in organization or production programs.

4. Analyze this evidence.

5. Tackle one specific need at a time and identify the training required to meet the need."

The Clark Manual (7) outlined four principle steps in

instructing employees. The four steps were telling, showing, testing and checking. By telling, the job is explained to the employee and includes giving him whatever preliminary information that will be helpful. The employee is put at ease when the trainer shows an interested attitude and associates instructions with the trainee's past experience. An effort is made to be sure the trainee understands the operation by giving him an opportunity to ask questions.

By showing, the trainee is informed about the correct way to do the job. During this phase the instructor shows the employee the simplest, easiest, shortest and most efficient method of operation. At this point the trainee should understand the "why" of the job. By testing, (trying) the trainee is allowed to do the easy parts at first and is then allowed to do the entire job slowly, if possible. The coaching time required will vary with the job. As the trainee progresses the instructor explains any additional fine points which may have been deferred at the start.

During the checking or follow-up the instructor checks on the safety, quality and quantity of production and answers any questions the worker may have.

Reitell (23) stated that the principles of good teaching include:

1. Knowledge of the operation.
2. Knowledge of individual differences in the way workers learn.
3. Creating interest.

4. Maintaining a sense of humor.

5. Clarity of expression.

6. Building self-esteem.

Uris (27) listed five requirements for the person doing the actual instructing:

1. Be sure the work method is as good as you can make it.

2. Learn the job yourself--job method, standards of quality and safety hazards.

3. Break the job down into elements.

4. Tag each element with its quality.

5. Have all material and equipment necessary in order for the teaching session.

He further stated that teaching technique should include the following:

1. Give the background of the job.

2. Put the operator at ease.

3. Run through the entire operation.

4. Teach operation by elements.

5. Have the operator perform the entire operation.

6. Quiz the operator on the important points.

7. Follow up with checking worker's work method.

Uris also mentioned that the instructor's teaching manner should be friendly, thorough, calm, proceed slowly and be encouraging.

Haas (17) suggested the qualities of a trainer as:

1. Ability to manage a group.

2. Mastery of the subject.

3. Pleasing appearance.

4. Self-control.

5. Tact and sympathy.

6. Cheerfulness and vitality.

7. Good voice and speech.

8. Mental alertness.

9. Enthusiasm.

10. Instructional skill.

Foremost Dairies, Inc. (4) has a manual which contained a production employees basic information program. The program was composed of seven meetings. The subjects covered were:

1. Milk--what milk is.

2. Ice Cream--what ice cream is made of and how ice cream is manufactured.

3. Dairy bacteriology.

4. Dairy chemistry, of milk and ice cream.

5. Temperatures.

6. Dairy arithmetic for milk plants and figuring ice cream mix.

7. Cleaning and sanitation.

8. Milk product and ice cream product defects.

PROCEDURES

A survey in the form of a questionnaire, Appendix III, was sent to 147 dairy plants to determine their need and interest in an organized training program. The survey included small, medium and large size dairy plants. Those dairies who did not answer the questionnaire within thirty days were sent a follow-up letter, Appendix II. The results of the survey were used as a basis for the development of the training program.

By seeking out the essentials necessary in a training program from literature, a recommended training program was established for small and medium size dairy plants. The selection of prospective dairy plant processing workers was regarded as a logical starting point for an organized training program. A personnel test was considered an important part of a selection program.

During the study of selection tests on file in the M.S.U. Testing Center and those from industrial sources, several tests were considered to be outstanding. Some of the tests studied were the Otis Self-Administering Test, Woody and McCall Mixed Fundamentals in Arithmetic, Bennet Test of Mechanical Comprehension, SRA Non-Verbal Form, SRA Verbal Form, Wesman Personnel Classification Test and the Wonderlic Personnel Test. Because the Wonderlic Personnel Test, Appendix V, had been standardized with a large number of industrial employees, (over 30,000) was relatively short and simple for lay personnel to administer and correlated with employee job performance, the test seemed to have greatest possibilities for adaptation to the dairy field.

To adapt the test for the dairy industry, the test was given to 254 dairy employees who represented nine different Michigan plants and included dairy workers from the superintendent on down. All the recommendations for test administration and correction listed in the Wonderlic Personnel Test Manual (30)were adhered to. The test was given in a separate room from the processing area in each individual plant to prevent any interruption. The test scores were then separated into individual job classifications. Logarithmic averages of the test scores were used to minimize the influence of extremes within a classification.

A rating sheet, Appendix IV, was used to compare individual scores with the employee's performance on the job. The rating form was prepared with seven different categories of traits. These were quality of work, volume of work, capacity to develop, initiative, work attitude, attitude toward others and knowledge of work. Wherever possible, two or more supervisors rated each man. Each trait for each category was given a number of one through five points corresponding with the degree of success the employee obtained. The rating given to each employee by the rating supervisors was averaged for each of the seven categories. These ratings were then totaled and used to compute the over-all average for the seven categories. The rating of each person was then compared to his Wonderlic Personnel Test score to determine the validity of the test for dairy employees. The method for analyzing the combined data from the test and rating sheet was obtained from the Test Service Bulletin (25).

EXPERIMENTAL RESULTS AND DISCUSSION

Results of the Questionnaire

The total questionnaires sent to dairy plants were 147. Forty-two (28.51%) were completed and returned and 22 (52.38%) were from medium and small size plants. The dairies surveyed varied in size from 2 to 3,200 employees. Those dairies who reported a large number of employees were operating several dairy plants. One dairy reported 2,500 employees, which included the poultry and margarine divisions. Dairies having 30 employees or less were considered medium and small size plants. Six out-state dairies replied, one from Ohio, Missouri, New York and Minnesota and two from California. Some dairies answered only part of the questions on the questionnaire. This is the reason all dairies are not represented on each chart.

Question I.

Do you have a need for a training program in your dairy Plant? Yes _____ No _____

Of the 42 dairies, 35 (83.33%) answered yes and 7 (16.67%) answered no. Of the medium and small size plants, 16 (72.73%) answered yes and 6 (27.27%) answered no. Results are presented in Table I.

TABLE I

RESULTS OF SURVEYED DAIRY PLANT TRAINING PROGRAMS

Dairy	Processing Employees	Sales Employees (Route Drivers)	Do you have a need for a training program?
A	60	0	Yes
B	150	160	Yes
C	37	25	Yes
D*	4	0	Yes
E*	15	16	No
F	33	0	Yes
G*	5	0	No
H	117	171	Yes
I	32	3	No
J*	30	3	Yes
K*	24	9	Yes
L	2,500 (Includes Poultry)		Yes
M*	14	2	Yes
N	55	32	Yes
O	300	700	Yes
P*	20	3	Yes
Q	98	29	Yes
R*	16	40	Yes
S*	6	15	Yes
T	120	0	Yes
U	50	0	Yes
V*	3	3	No
W*	28	3	Yes

TABLE I (Continued)

Dairy	Processing Employees	Sales Employees (Route Drivers)	Do you have a need for a training program?
X*	30	10	Yes
Y*	4	36**	Yes
Z	120	0	Yes
AA	370	630	Yes
AB*	18	4	Yes
AC*	11	5	No
AD	3,000	400	Yes
AE	45	45	Yes
AF	450	150	Yes
AG*	22	60	Yes
AH*	24	0	No
AI	40	20	Yes
AJ*	29	38	Yes
AK*	6	2	Yes
AL	3,200	4,300	Yes
AM*	3	2	No
AN*	2	1	Yes
AO	45	0	Yes
AP*	18	0	Yes

* Indicates small and medium dairy plants.

** Store employees.

All dairies must do some training, even if it is not an organized program. Many (83.33%) recognized their training needs and were desirous of more training information. The results seemed to indicate that the main emphasis should be placed on disseminating training information to those dairies who recognized their training needs and by showing the importance of an organized training program to those dairies who do not recognize their training needs.

Question II

At what stage in training is the new employee given information about company history, regulations and worker benefits?

All but 4 (90.48%) of all size dairies stated that the above information was given to the employee at the beginning of his employment. Dairies U, V and Y stated they had no definite time to disseminate the information in Question II. Dairy J said the new employee is given information about company history, regulations and worker benefits after his first 30 days of employment. This information given to the employee at the beginning of his employment seemed to help welcome him to the organization and by knowing what was required of him, helped him get the full benefit of specific job training.

Question III

What type of training program do you have in your plant now?

While some dairies stated they were starting a training program only 10 (23.81%) of all size dairies reported having an

organized training program. Four (18.18%) of the medium and small size dairies reported having an organized training program. All the dairies with the exception of one stated that any training they did was on-the-job training or the learner-helper method of training. The manager of dairy V stated that because he had a family operation he had no training program. Thirty-two (76.19%) of the dairies who did not have an organized training program, requested information pertaining to an organized training program.

Question IV

Do you have a trainee evaluation program?

Eight (19.05%) of all size dairies stated they had a formal trainee evaluation program. Four (18.18%) of the medium and small size dairies stated they had a formal evaluation program. The remaining 80.95% of the dairies said that informal rating was done either by the foreman or the superintendent and that this rating was not formally recorded.

Without a written employee evaluation plan, management could be at a loss for evidence of a trainee's work progress. An evaluation plan such as a merit rating system could provide management with a periodic progress report to keep him informed of the latest developments in the training program. The personnel officer of dairy AE mentioned he was thinking of having each employee rate his fellow employees. The personnel officer believed this could help an individual employee determine what his fellow workers thought of his work progress.

Question V

How much time do you allow for training the following: (Consider the training time as the time it takes to do a job without an instructor standing nearby).

a. HTST operator

b. Freezer operator

c. Cheese maker

d. Clean-up man

e. Seasonal employees

f. Route-delivery man

TABLE II

TIME ESTIMATED BY DAIRIES TO TRAIN EMPLOYEES

Dairy	Job Classifications (weeks)					
	a	b	c	d	e	f
A	-	-	-	2	2	2
B	-	-	-	-	-	2
C	-	-	-	-	-	3
E*	4	2	4	2	1	2
F	-	-	-	1	1	-
G*	.5	-	104	1	-	-
H	2	4	4	.5	.25	4
I	1.5	-	1.5	1.5	1.5	1.5
K*	2	10	12	6	1	3
M*	-	8	-	2	-	2
N	1	-	-	.5	1	2
O	4	-	52	1	2	2
P*	-	4	-	4	2	1

TABLE II (Continued)

Dairy	Job Classifications a	b	c (weeks)	d	e	f
Q	1	1	-	.5	.5	1
S*	.5	-	-	1	1	1
T	12	-	-	4	-	-
U	2	-	-	0	-	-
W*	1	-	-	-	4	1
X*	2	2	3	1	1	2
Z	-	-	-	1	-	-
AB*	3	3	12	1	1	1
AC*	12	-	-	-	-	4
AE	2	2	4	1	1	2
AF	1	1	2	.5	.25	1
AG*	2	-	2	1	1	2
AH*	-	-	24	12	4	-
AI	1	2	1	.5	1	.5
AJ*	1	-	-	.5	1	1
AK*	4	3	3	2	-	2
AM*	2	-	-	-	-	2
AO	2	-	-	2	1	-
Averages	2.76	3.5	16.98	1.98	1.35	1.88

* Indicates small and medium size dairies.

The training time required for some jobs listed in Question V varied considerably between plants(TABLE II). This seemed to be caused by some dairies including both on the job and technical training in their program while others included only on-the-job training. Those dairies who left Question V unanswered, stated they did not

know how long the training time should be for the specific jobs because they did not have an organized training program.

Question VI

Do you send any trainees to special schools? If yes, please list the type of schooling (short courses, company schools, night classes, etc.)

Many (57.14%) of all size dairies used special schools in their training programs. Fifteen (68.18%) of the medium and small size dairies used special schools. The relatively high percentage of dairies that sent their employees to special schools seemed to indicate that many dairies were interested in special employee training. Some of the schools used were, Short Courses at Michigan State University, mechanics schools, Milk Industry sales training schools and special company training schools.

Question VIII

Do you use any type of tests in your training program? If you answer yes, please state the types of tests used.

Nine (21.43%) of all size dairies reported they used tests in their training or selection programs. Two (9.09%) of the medium and small size dairies reported using tests. Several dairies stated they used Milk Industry Foundation's selection tests for their route salesmen. Dairy AA used the "Klein Supervisory Battery" for those employees who entered the supervisory training program. Dairies B, N, AF and AL use tests only for their company training courses.

A few dairies (11.91%) were using a selection test for route drivers, but none mentioned using selection tests for processing employees. Selection tests for processing employees seemed to be a subject that needed further study and was taken up under a separate section entitled Wonderlic Personnel Test Results.

Question IX

How do your employees react to your training program (give percentages; use any percentage from 1 to 100 as your answer)?

a. Like it.

b. Consider it a "necessary evil."

c. Dislike it

d. Consider it helpful in adjusting initially.

e. Expect an almost immediate promotion.

f. Consider it too long.

g. Consider it too short.

h. Consider it too much of an interference.

TABLE III

EMPLOYEE REACTION TO COMPANY TRAINING PROGRAM

	Employee Response to Present Training Program							
Dairy	a	b	c	d	e	f	g	h
	%	%	%					
B	84	12	4	Yes	No	No	No	No
E*	100	-	-	Yes	No	No	No	No
F	50	25	25	Yes	No	No	No	No
H	85	10	5	Yes	No	No	No	No
K	100	-	-	Yes	No	No	-	-
N	-	-	-	Yes	No	No	No	No
P*	70	20	10	Yes	No	No	No	No
S*	100	-	-	-	-	-	-	-
T	-	-	-	Yes	No	No	No	No
U	100	-	-	Yes	No	No	No	No
X*	90	10	-	Yes	No	No	No	No
Z	100	-	-	Yes	Yes	Yes	No	No
AA	70	20	10	Yes	No	No	No	No
AB*	50	45	5	Yes	No	No	No	No
AF	100	-	-	Yes	No	No	No	No
AG*	100	-	-	Yes	No	No	No	No
AH*	100	-	-	Yes	No	No	No	No
AI	60	35	5	Yes	No	No	No	No
AJ	50	40	10	Yes	No	No	No	No
AL	65	23	12	Yes	No	Yes	No	No
AO	50	50	-	Yes	No	No	No	No

* Indicates small and medium size dairy plants.

All dairies (TABLE III) stated their employees considered the program helpful in adjusting to their job. The remaining answers to Question IX seem to confirm the fact that the employees realize a training program is helpful in adjusting to new jobs.

Question X

Please note any other comments you have about training dairy production workers and route salesmen. Note: If you have any training materials such as brochures, tests, or manuals, please include them.

Dairy B stated that they use a three man training system. "A short time operator has a helper who works under the direction of the operator. The helper gradually acquires the skills of the job. When the operator is not on the job, the helper assumes the job responsibility and is assigned a less experienced helper for those days. If he is not competent to do the job alone, a supervisor is there to guide him." The dairy uses a standard operating procedure (written) to cover all operations.

Dairy F summarized that it can usually judge the better employee by the attention that he gives the supervisor or instructor when describing details of his work and by the attention that he gives to minor details of his work when doing the job assigned to him.

Dairy H stated, "We feel that training programs for production workers and route salesmen help make them more interested in their job through a better understanding of it. It also gives our salesmen a definite advantage over our competitors who offer no training

for their men."

Dairy H also mentioned a special training program provided for college graduates with a degree in Dairy Manufacturing. "The new graduate works in Industrial Engineering for a minimum of one year. As a part of this assignment, he substitutes for first level production supervisors during their vacations and is evaluated at the end of each trial supervisory assignment. After one to two years if the man shows adequate potential and interest he is promoted either to a production supervisory position or his experience is broadened by assigning him to another function."

The manager of Dairy J said, "I feel that the dairy industry, as a whole, needs a better training program, and believe me, I feel that you are on the right track in trying to work out some solution that would fit into the general dairy processing plant operation."

Dairy M said, "A good employee training program must include such items as employment policy under which you will find:

1. Age limits and physical condition.
2. Company rules-both men and women.
3. Employee should be informed as to term of his employment (very important in training program).
4. Explain benefits of union contract which the company has granted. Very important for employee to know this and to know what he can accomplish if he becomes a good employee.
5. Explain normal hours.
6. Explain overtime hours and pay.
7. Explain question of age limitations.

8. Inform the employee of materials available for self help, for example magazines and books in the office.
9. Inform the employee of training school he might attend at company expense.
10. Inform him of wage scale, compensation, insurance, bulletin board, clothing, first aid and what he must do when he is ill or injured.
11. Tell him how the company handles complaints.
12. Explain the rule in regard to intoxicating liquors.
13. Explain how he should act and treat new employees.
14. Explain the safety rules, suggestion system, punctuality, seniority and smoking rules."

Dairy M further stated, "The above items are important in making a new man a happy and efficient employee."

The plant superintendent of Dairy AK stated, "I feel in many ways a small operation is an advantage for our employees if they really wish to learn the dairy business. We give every man the benefit of learning not only one machine or operation, but as many as he desires or has the capabilities to master. We never feel too badly to lose a good employee if, when he leaves, he is bettering himself and taking a step upward in the dairy field. As yet, I have never found a good employee who does not learn something new each week."

The training manager of Dairy AL stated in reference to a training program, "Above all, the courses or program must be sold to top management. Too much stress of mass training as used in heavy industry in World War II is misinterpreted as a cure-all for

management ills. Correcting past practices which no longer work is a reorganizational problem and does not always level itself to the usual training techniques."

Results of the Wonderlic Personnel Test and Supervisors Ratings

The logarithmic average of the Wonderlic Personnel Test (Appendix V) score for 254 dairy plant employees was 20.60 out of a possible range of 0 to 50. The supervisors ratings (Appendix IV) on the same employees had a logarithmic average of 3.00 with a possible range of 1 to 5. Table IV presents these data along with the range of test scores and ratings for each of the common job classifications (27 job classifications were studied) in the nine dairy plants involved in the study. Included were retail and wholesale salesmen drivers as well as the various plant employees from superintendent (production) down to unskilled laborers. Logarithmic averages of the test scores and ratings were used to minimize the influence of the extremes within the range.

The supervisors rating of each individual was compared with his personnel test score to ascertain if the score would serve as a reliable guide for the selection of prospective employees from applicants for dairy plant jobs. The correlation between the test score and the rating was 0.167 which is significantly different from zero at the one per cent level. The sampling was sufficient in size to indicate that if the correlation was actually zero the chances of obtaining the correlation of 0.167 or larger would be less than one in one hundred.

The rather low correlation does not necessarily invalidate the use of the Wonderlic Personnel Test for the selection of dairy plant employees because of the following conditions: (1) Some of the employees, especially a few that were foreign born had trouble reading and understanding the personnel test questions. This could conceivably cause a low test score but would not be a handicap in capably discharging many dairy job duties. (2) It was necessary to have the employees take the personnel test when it was least inconvenient for their activities. Consequently many were tested during or at the end of the work day; fatigue could have caused the test score to be lower than it otherwise would have been. (3) Many of the supervisors who performed the ratings were insufficiently trained in the proper essentials of evaluating their employees. (4) In some dairy plants only one supervisor was available for rating the employees thus, there was a possibility of personal likes and dislikes influencing the rating evaluation. (5) The variety of duties handled by some employees particularly in a small plant caused difficulty in the assignment of a single position. Correction of these weaknesses and the testing of a larger number of employees especially in several job classifications with few test scores would add much to the value of this study.

Standardization is usually referred to as a method of obtaining cutting scores for a particular test. They are used as a basis for the evaluation of the individual score. Cutting scores represent the minimum score allowed for a job classification. Wonderlic (30) has established minimum personnel test scores from the data of 30,000 adults in various industries. Many of the

positions and the corresponding minimum test score could serve as a guide for application to dairy plant employment: superintendent--28, foreman--25, production control--25, private secretary--25, stenographers--22, office clerk--22, salesmen (non-technical)--22, routine clerical workers--20, skilled mechanics--18, sub-foremen--18, routine salesmen--15, general factory help (grade A)--15, unskilled labor--8, and janitor--8.

An alternative possibility is for dairy plant management to use the logarithmic average of personnel test score (Table IV) as a basis of the selection of prospective employees. After a careful study of the data, the minimum test score was established as the logarithmic average minus 3 for each of the job positions: superintendents--26.3, dispatchers--25.6, part time students--24.9, foremen--24.2, filler operators-paper--21.3, mix makers--21.2, laboratory workers--20.8, separator operators--20.8, swingmen--20.3, route drivers-retail--19.4, load out workers--19.4, filler operators-can--19.2, filler operators-glass--18.5, semi and tank drivers--18.5, can washer operators--17.8, butter makers--17.8, HTST operators--17.3, vacuum pan and drier operators-16.5, route drivers wholesale--16.2, maintenance workers--16.0, freezer operators--15.9, receiving room workers--15.6, cheese packagers--12.4, general plant workers--12.3, cheese makers--11.7, cooler workers--11.2 and bottle washers--10.1.

The same job title is not an accurate indication of the specific duties of individuals in various dairy plants. Hence there is a need as experience is gained for management to alter the minimum score for each position to best serve the local

requirements. This applies not only to different companies but to various plants within a company.

A test score above the passing minimum is not a guarantee of employee success nor is a test score below the minimum an accurate indication the individual will be a failure on the job; however, Wonderlic and other studies show the value of utilizing the test score for selection to be high compared to records on employees selected without personnel testing.

This study did not include collection of data on the maximum personnel test score for each job position. Nevertheless, management should investigate this aspect with the thought of reducing labor turnover by the establishment of maximum limits for each position. Except for training purposes, an employee with too high a test score for the position will very likely become dissatisfied and leave under normal conditions.

Results of the data from this investigation definitely indicate the need for additional research on the use of personnel testing as a means of selecting prospective dairy plant employees.

TABLE IV

TEST SCORES AND RATING OF DAIRY PLANT EMPLOYEES

Job Classification	No.	Wonderlic Test Score		Supervisors Rating	
		Log. Ave.	Range	Log. Ave.	Range
Superintendents	3	29.3	27.0-31.0	3.72	3.43-3.90
Dispatchers	3	28.6	23.0-32.0	2.55	2.43-2.78
Part time Students	11	27.9	19.0-38.0	3.29	2.90-3.86
Foremen	19	27.2	15.0-40.0	3.36	2.29-4.21
Filler operators-paper	13	24.3	13.0-37.0	2.58	2.29-3.86
Mix makers	3	24.2	21.0-27.0	2.87	2.50-3.14
Laboratory workers	4	23.8	13.0-42.0	3.28	2.71-3.86
Separator operators	2	23.8	23.0-24.0	2.95	2.71-3.21
Swingmen	4	23.3	16.0-31.0	3.36	2.93-3.86
Route Drivers-Retail	56	22.4	10.0-35.0	3.03	1.85-4.64
Load out workers	12	22.4	11.0-30.0	2.83	2.14-3.57
Filler operators-can	3	22.2	19.0-25.0	3.32	2.71-4.04
Filler operators-glass	5	21.5	17.0-28.0	2.81	2.43-3.50
Semi and tank drivers	4	21.5	20.0-24.0	2.91	2.79-2.14
Can washer operators	2	20.8	18.0-24.0	2.95	2.71-3.21
Butter makers	2	20.8	18.0-24.0	3.38	3.14-3.64

TABLE IV (Continued)

Job Classification	No.	Wonderlic Test Score		Supervisors Rating	
		Log. Ave.	Range	Log. Ave.	Range
HTST operators	8	20.3	12.0-32.0	3.12	2.07-4.21
Vacuum pan and drier operators	6	19.5	10.0-30.0	3.03	2.64-3.54
Route Drivers-Wholesale	10	19.2	10.0-29.0	2.81	1.82-3.79
Maintenance workers	21	19.0	10.0-30.0	3.03	2.64-3.54
Freezer operators	6	18.9	10.0-28.0	3.35	2.00-4.29
Receiving room workers	4	18.6	11.0-26.0	3.17	2.71-3.71
Cheese packagers	5	15.4	12.0-25.0	3.02	2.64-3.57
General plant workers	27	15.3	5.0-32.0	2.77	1.90-4.00
Cheese makers	5	14.7	11.0-20.0	3.46	2.93-4.14
Cooler workers	9	14.2	5.0-25.0	2.74	2.07-3.79
Bottle washers	7	13.1	6.0-20.0	2.96	1.93-3.57
Total	254	20.6 Ave.		3.00 Ave.	

A Recommended Training Program for the Small and Medium Size Dairy Plant.

A. On-The-Job Training Program.

Step I The Job Statement.

Step II Selection of Employees.

Step III Orientation and Induction.

Step IV Choosing the Instructor.

Step V Demonstration and explanation of each step in the job statement.

Step VI Encourage the Employee to do the Job.

Step VII The Follow-Up Process.

Step I The Job Statement

A job statement usually contains two parts, the job description and the job specification. The job description includes a listing of the component parts of the job, the tools, equipment and materials used, the special training required and the conditions under which the work is performed. An explanation of each specific part of the job and why each function is performed should also be included in a job description.

A job description should be prepared for each job in the plant with the assistance of employees who have a thorough knowledge of the job. The job description should serve as the basic guide for an on-the-job training program.

Job specification presents the qualifications required for the job such as skill, experience, special aptitudes, education and

mechanical ability.

Step II Selection of Employees

The following is a brief guide which the dairy plant manager can use in his selection program:

1. A short preliminary interview should be given to explain the type of opening available to the prospective employee and decide whether to proceed with the selection process.
2. Choose an application form that gives the specific information necessary to properly evaluate an applicant (Appendix VI). A plant manager should periodically review his application form to keep it up to date. All previous supervisors listed on the form should be contacted to determine the accuracy of the applicants statements.
3. The Wonderlic Personnel Test should be used to assist in the selection of employees for specific jobs by eliminating those candidates whose scores are obviously too low as compared to the standard score for the job. The Personnel Test can also be used to help determine the qualifications of a present employee to perform a new or different job in the dairy plant.
4. A medical examination for food handlers is required by law in most states. A complete medical examination by a qualified physician can help materially in personnel selection. Persons with typhoid fever, paratyphoid fever, diphtheria, tuberculosis or any other communicable disease should be disqualified. By recording any physical defects

that are noted during the selection process, the employer can prevent unjustified compensation payments that may occur later. Through a medical examination, an employer can compare the physical requirements of the job with the physical capabilities of the prospective employee.

5. After the above processes have been completed and the employer has a fairly good knowledge of the prospective employee's capabilities, the manager should be ready to proceed with the main interview. The objective of the main interview should be to become better acquainted with the applicant and help the applicant become better acquainted with the company. Specific subjects that should be discussed are; work history, domestic or family background, educational background, tenure or stability, attitudes, personality, job information and questions arising from the application blank.

Step III Orientation and Induction

A manager can save valuable time by using a written preparation of pertinent facts about the company through a printed booklet, mimeographed material or even a typed copy. The purpose of such a booklet is to give the employee information about the company and serve as a future reference of company policy. Specific subjects to consider in preparing an employee booklet are:

Absence	History of company
Accidents & safety rules	Holidays
Activities & facilities for employees	Hours of work

Care of equipment

Cashing checks

Community relations

Credit policy

Employee benefits

Employment outside of business hours

Pay day and how pay is figured

Products of the dairy

Recreation facilities and activities

Retirement plan

Jury duty

Lunch hours

Military service leave policy

Opportunity for advancement

Overtime

Training program

Vacations

Union contract

The plant manager should discuss the booklet with the employee and answer any questions pertaining to employment with the company.

The employee should be taken on a tour of the plant and introduced to his fellow employees and supervisors.

Step IV Choosing the Instructor

The man who does the actual on-the-job training is an important link between management's goals and the employees' job performance. He should have a clear knowledge of management's goals, the employee's job and be a good teacher. By using a merit rating system as a measure of employee performance such as that used in Appendix IV, a manager can determine which of his present employees could qualify as an instructor.

Step V Demonstration and explanation of each step in the job statement

The instructor should perform the job operations while the new employee is standing nearby watching. After the operations are completed the instructor should hand a copy of the job description to the employee and explain each step using the job description as a guide. The new employee should then be allowed to personally perform parts of the operation while the instructor performs the bulk of the job. The instructor should point out the common difficulties encountered during the operation and also emphasize all product and personal safety precautions.

Step VI Encourage the Employee to do the Job.

Gradually, the trainee should be given small parts of the job to do until he can complete the whole job without assistance. The instructor should be nearby to answer any questions the trainee may have. Whenever possible the instructor should refer the question to the job description sheet. This does not mean that the instructor should side-step or dodge questions asked by the trainee. Mistakes in many operations are very costly and the instructor should do all he can to help the trainee think for himself. The instructor should not be a crutch to the employee but act as a guide who points out the correct way to do a job.

Step VII The Follow-Up Process

The follow-up process is often neglected in a training program but can be performed by periodically questioning the trainee about his job and by observing and correcting his mistakes. The follow-up process should also include a periodic evaluation to determine the

employees work progress. This should be done after the first three months and every six months thereafter.

B. Informational Training Program

A series of informational programs should be given to supplement the on-the-job training program by educating the employees of the technology involved in processing dairy products.

The program can be used as a continuous educational plan to keep employees informed of new trends and developments in the dairy industry and as a refresher course in dairy plant processing. Group participation should be encouraged by keeping the meetings open for questions.

The program should be conducted by the plant manager or at least sponsored wholeheartedly by him. Technically trained plant personnel should be called upon for assistance. College extension personnel and equipment manufacturers are often available to help in certain phases.

The following outline consists of the important subjects involved in dairy products processing. The material is arranged for convenient use in lectures and discussions.

I. Basic dairy information

A. Properties of Milk and Milk Products

1. Legal standards for milk and milk products.

a. Federal standards for milk, ice cream, cheese, butter, condensed and dry milk.

b. State standards for same products.

2. Composition of milk.

a. Fat.

b. Solids-not-fat.

c. Protein.

d. Carbohydrates.

e. Salts in milk.

f. Enzymes.

g. Vitamins.

h. Taste, odor and color.

i. Acidity, alkalinity, pH and specific gravity.

j. Factors influencing composition.

3. References (see page 60): (c) pp. 21-48, (g) pp. 1-17, (j) pp. 1-44, (k) pp. 10-37, (n) pp. 5-33, (s) pp. 1-30.

B. Microorganisms.

1. Bacteria, yeasts and molds normally found in dairy products.

a. Kinds.

b. Sources.

c. Effects.

2. Methods of destruction.

a. Pasteurization (time and temperatures).

b. Chemical methods.

c. Other methods.

3. Microorganisms used in dairy products.

a. Types of bacteria.

b. Preparation and care of cultures and starters.

1. Difficulties encountered.

2. Handling procedures.

c. Molds.

4. Bacteriophage and its control.

5. References: (a) pp. 22-68, (c) pp. 102-131, (e) pp. 237-255, (f) pp. 3-29, 175-189, 272-309, (k) pp. 38-55, (o) pp. 375-393, (r) pp. 381-386, (s) pp. 79-93.

C. Milk and related products.

1. Cream line milk.

a. Define.

b. Methods of processing.

c. Defects and their prevention.

2. Cream.

a. Methods of preparation for different percentages of fat.

b. Defects and their prevention.

3. Homogenized milk.

a. Define.

b. Advantages and disadvantages.

c. Defects and their prevention.

4. Fortified milk.

a. Means.

b. Methods.

c. Special handling techniques.

d. Defects and their prevention.

5. Chocolate milk.

a. Methods of preparation.

b. Difference between cocoa and liquor chocolate.

c. Defects and their prevention.

6. Buttermilk and cultured cream.

a. Methods of preparation.

b. Defects and their prevention.

7. Cottage cheese.

a. Methods of preparation.

b. Creaming procedures.

c. Cheese failures, defects and their prevention.

d. Whey.

8. References: (k) pp. 419-468, (l) p. 34, (m) pp. 511-591, (s) pp. 382-405.

D. Ice cream, sherbets, soft serve ice cream and milk ices.

1. Define each one.

2. Preparation methods of each.

3. Mix composition and ingredients of each.

a. Fat and solids sources.

b. Sweetening agents.

c. Stabilizers and emulsifiers.

d. Flavoring and coloring.

4. Calculation of mix.

5. Common defects and their correction.

6. References: (c) pp. 290-312, (n) pp. 27-411, 430-573, (r) pp. 32-131, 228-418.

E. Quality and composition control.

1. Explanation of quality control.

2. Sampling methods.

3. Control methods.

a. Organoleptic.

(1) Sight, smell, taste, touch.

(2) Scoring and grading.

b. Bacteriological methods, significance and procedures.

(1) Standard plate count.

(2) Direct microscopic count.

(3) Methylene blue and resazurin reduction tests.

(4) Coliform count.

(5) Psychrophilic count.

(6) Thermoduric count.

(7) Proteolytic count.

(8) Lipolytic count.

(9) Yeast and mold count.

c. Chemical and physical tests.

(1) Fat tests, S.N.F. tests, acidity tests.

(2) Phosphatase test.

(3) Temperature.

(4) Lactometer.

(5) Homogenizer efficiency test.

(6) Tests on water such as chlorine strength.

(7) Washer alkali solution tests.

(8) B.O.D.

4. References: (a) pp. 419-483, (b) pp. 9-352, (c) pp. 102-150, (e) pp. 1-326, (f) pp. 1-252, (g) pp. 296-304, (h) pp. 640-733, (i) pp. 7-43, (j) pp. 45-202, (k) pp. 38-144, 199-220, 561-668, (m) pp. 395-444.

F. Housekeeping and cleaning.

1 Housekeeping.

a. Importance.

b. Appearance of the plant.

c. Proper placement of supplies and equipment.

d. Health and cleanliness of employees.

e. Insect and rodent control.

2. Cleaning dairy equipment.

a. Cleaning compounds.

b. Proper tools.

c. Proper temperatures.

d. Washer solution strength.

e. Methods for can, bottle and equipment washing.

f. C.I.P. systems.

g. Sanitizing procedures.

3. References: (a) pp. 523-399, (j) pp. 338-372, (k) pp. 272-310, (m) pp. 211-245, 363-394, (r) pp. 330-369.

G. Care and maintenance of dairy equipment.

1. Importance of care and repair.

2. Lubrication.

a. Lubrication schedule.

b. Types of lubricants.

c. Types of bearings and lubricants required.

d. Lubrication of specific equipment.

3. Proper use of electric power for equipment.

4. Care of refrigeration systems.

5. Proper use of specific equipment.

6. References: (a) pp. 601-614, (d) pp. 408-423.

H. Dairy Arithmetic.

1. Calculation of fat and S.N.F. content.
2. Neutralization.
3. Standardization of fat or solids.
4. Mix calculations.
5. Calculation of efficiencies.
6. References: (a) pp. 437-443, (c) pp. 352-367, (h) pp. 723-727, (k) pp. 669-671, (m) pp. 454-455, (n) pp. 172-201, (r) pp. 115-130, (s) pp. 40-54.

I. Accident Prevention.

1. Importance.
2. First aid facilities.
3. Handling heavy objects.
4. Cleaning precautions.
5. Operation of equipment safely.
6. Caustics and other chemical handling.
7. Floors and stairways.
8. Ice handling.
9. Plant traffic hazards.
10. Personal protective equipment.
11. Refrigerating systems, boilers and pressure vessels, electrical apparatus.
12. References: (a) pp. 627-644, (p) pp. 185-201.

II. Processing Information.

A. Efficiency and losses.

1. Define and importance.
2. Efficiency.

a. Labor.

b. Materials handling.

c. Equipment operation.

d. Others.

3. Losses.

a. Product losses (when, where and why they occur).

(1) Improper drainage of equipment.

(2) Excessive foaming.

(3) Overflow of vats.

(4) Over filling package.

(5) Leaky valves.

(6) Weight losses.

(7) Sampling losses.

(8) Standardization losses.

(9) Losses from returns.

b. Supply losses.

(1) Container.

(2) Cleaners and sanitizers.

(3) Maintenance supplies.

(4) Farmers supplies.

(5) Miscellaneous supplies (sugar, fruits, nuts, flavors, wax, etc.).

c. Utility losses.

(1) Fuel.

(2) Water and steam.

(3) Electricity.

4. References: (a) pp. 159-174, (p) pp. 83-136.

B. Pasteurization systems and methods.

1. HTST pasteurization.

a. Function of component parts.

b. Factors affecting operation.

2. Vat method of pasteurization.

3. References: (a) pp. 282-292, (c) pp. 187-196, (d) pp. 300-318, (h) pp. 260-300, (k) pp. 313-342, (m) pp. 104-116, 323-360.

C. Homogenizers.

1. Function of component parts.

2. Factors affecting operation.

3. References: (a) pp. 269-281, (c) pp. 196-200, (d) pp. 280-299, (k) pp. 435-443, (m) pp. 528-541, (q) pp. 59-81.

D. Separators and Clarifiers.

1. Explain the difference between the above terms.

2. Function of component parts.

3. Factors affecting operation.

4. Why cream tests vary.

5. References: (a) pp. 261-268, (c) pp. 151-186, (d) pp. 292-297, (h) pp. 160-196, (k) pp. 251-255, 261-265, (m) pp. 445-454.

E. Glass bottle and carton fillers.

1. Function of component parts.

2. Factors affecting operation.

a. Air in product and foaming.

b. Glass breakage.

c. Control of fills.

d. Wax surfacing factors.

e. Temperatures.

f. Paper storage.

3. References: (a) pp. 328-338, (d) pp. 365-379, (k) pp. 256-261, (m) pp. 390-394.

F. Ice Cream Freezing.

1. Explain how freezing is accomplished.

2. Overrun.

a. Calculation.

b. Factors affecting.

3. Freezer accessories.

a. Fruit feeder.

b. Packaging machines.

c. Mold attachments.

4. Factors affecting operation.

5. Describe the refrigeration controls.

6. References: (d) pp. 248-279, (h) pp. 249-315, (r) pp. 177-227.

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SUMMARY AND CONCLUSION

The results of a questionnaire from 42 dairy plants indicated 83.33% recognized a need for an employee training program in the plant but 76.19% did not have an organized training program. Special schools were used by 57.14% whereby a few of the employees attended university short courses, trade schools, industry training classes and miscellaneous educational programs.

In general, information about company rules and regulations, employee benefits and necessary details concerning duties were given to the employees at the beginning of employment in 90.48% of the dairy plants. Of these plants, most of which had very little planned training, all indicated the employees considered the information beneficial in adjusting to the new job.

The average Wonderlic Personnel Test score for 254 employees in 9 dairy plants was 20.60. The supervisors' rating on the same employees was 3.00. The employees were classified into 27 job positions. The correlation between the test score and the rating was 0.167 which was considered significantly different from zero at the one per cent level. This correlation was lower than Wonderlic's who studied 30,000 workers in various industries that did not include the dairy industry. But, dairy plant management can use the Personnel Test scores in the objective evaluation of applicants. The following minimum scores for various plant positions will provide a guide for the selection of employees among applicants until adjusted to local plant conditions by

experience: superintendents--26.3, dispatchers--25.6, part time students--24.9, foremen--24.2, filler operators-paper--21.3, mix makers--21.2, laboratory workers--20.8, separator operators--20.8, swingmen--20.3, route drivers-retail--19.4, load out workers--19.4, filler operators-can--19.2, filler operators glass--18.5, semi and tank drivers 18.5, can washer operators--17.8, butter makers--17.8, HTST operators--17.3, vacuum pan and drier operators--16.5, route drivers-wholesale--16.2, maintenance workers--16.0, freezer operators--15.9, receiving room workers--15.6, cheese packagers--12.4, general plant workers--12.3, cheese makers--11.7, cooler workers--11.2 and bottle washers--10.1.

A two phase program was prepared for management of medium and small dairy plants to facilitate the training of processing employees. The first involved a procedure for effective on-the-job training of new employees while they are learning the duties by working at the job. The second phase consisted of an educational program in outline form designed to inform the employees of the elementary technical subjects related to dairy products, processing equipment and methods.

In conclusion, this study indicated the need for training dairy plant employees, presented a personnel test for use in a selection program and proposed a training program that should prove valuable for medium and small size dairy plants.

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APPENDIX I

Mr. E. O. Smith, Manager
Smith Creamery
Jonesville, Michigan

Dear Mr. Smith:

How many times has your company suffered a time or product loss because of improperly trained production workers and route salesmen?

Perhaps you have solved many such problems through a training program. Many plants do not have a job training program for production workers or route salesmen. By assembling the successful training methods used by different dairies, a complete and worth-while training program could be developed. This summary will be useful to both large and small dairies.

Some basic information about job training for the production worker and route salesmen is covered in the attached questionnaire. Your comments in answering these questions will contribute materially in making a worth-while thesis of the one I am preparing as a partial requirement for a graduate degree at Michigan State University. Any pamphlets regarding your training program will be helpful. A copy of the completed study will be available on request.

Just jot down your answers and any comments you may have on the questionnaire. I will handle any material you submit with whatever degree of confidence you specify. I will certainly appreciate your helping to make this a more complete study.

Sincerely,

APPENDIX II

Mr. E. O. Smith, Manager
Smith Creamery
Jonesville, Michigan

Dear Mr. Smith:

Before you discard this second letter to you as just another questionnaire, let me explain how you can benefit by answering the questions. Many dairies with few employees think that a training program is just for large companies. Surely you realize that you are training everytime you show an employee how to do a new job.

Here is where a training program can help you. Modern methods have been developed to decrease the time and the cost of training. Will these methods be available to you? Yes, this is the main reason for developing a program.

Even if you do not have a formal training program, you will be helping us by stating this on the questionnaire. Please add any comments you may have and return the questionnaire today.

I will handle any material you submit with whatever degree of confidence you specify. I will certainly appreciate your helping to make this a more complete study.

Sincerely,

APPENDIX III

Job Training for Dairy Production Workers and Route Salesmen

Name of Firm _____

Firm Representative _____

Title _____ Date _____

Number of Production Employees _____ Route Salesmen _____

Instructions: Fill in your comments after each question. If you need more space please use the back of this page. (It is 3 pages long so that you'll have sufficient room to answer.)

I. Do you have a need for a training program in your dairy plant? Yes _____ No _____

Comments:

II. At what stage in training is the new employee given information about company history, regulations, and worker benefits?

Comments:

III. What type of training program do you have in your plant now?

Explain:

IV. Do you have a trainee <u>evaluation</u> program?

Give brief description:

V. How much time do you allow for training the following: (Consider the training time as the time it takes to do a job without an instructor standing nearby.)

A. Short-time operator

B. Freezer operator

C. Cheese maker

D. Clean-up man

E. Seasonal employees

F. Route-delivery man

VI. Do you have any special training program for college graduates with a degree in Dairy Manufacturing?

Yes _____ No _____

Explain (if yes)

VII. Do you send any trainees to special schools? If yes, please list the type of schooling. (Short course, company schools, night classes, etc.)

Yes _____ No _____

Kind of schooling:

VIII. Do you use any type of tests in your training program? (If you answer yes, please state the types of tests used.)

Yes _____ No _____

Tests used and your evaluation:

IX. How do your employees react to your training program? (Give percentages, use any percentage from 1 to 100 as your answer.)

Reactions:

A. Like it. _____%

B. Consider it a "necessary evil." _____%

C. Dislike it. _____%

Total percentage _____%

D. Consider it helpful in adjusting initially to the job. Yes ____ No ____

E. Expect an almost immediate promotion Yes ____ No ____

F. Consider it too long Yes ____ No ____

G. Consider it too short Yes ____ No ____

H. Consider it too much of an interference. Yes ____ No ____

(Please check one)

X. Please note any other comments you have about training dairy production workers and route salesmen.
Note: If you have any training materials, such as brochures, tests, or manuals, please include them.

APPENDIX IV

EMPLOYEE RATING CHART*

Employee's Name _____

Employee's Job Title _____

Brief Description of Work _____

_____

YOU ARE ASKED TO RATE THE EMPLOYEE ON EACH OF THE SEVERAL TRAITS OR QUALITIES LISTED HERE. CHECK THE APPROPRIATE DESCRIPTION AFTER EACH TRAIT.

QUALITY OF WORK

1. Doubtful that quality is satisfactory . . . . . _____
2. While not unsatisfactory quality is not quite up to standard . . . . . _____
3. Quality is quite satisfactory. . . . . _____
4. Quality is superior to that of general run of employees _____
5. Exceptionally high quality . . . . . _____

VOLUME OF WORK

1. Unusually high output. . . . . _____
2. Turns out more work than the general run of employees _____
3. Average satisfactory output. . . . . _____
4. Inclined to be slow. . . . . _____
5. Insufficient output. . . . . _____

CAPACITY TO DEVELOP

1. Future growth doubtful . . . . . _____
2. Moderate development ahead . . . . . _____
3. Shows promise . . . . . _____
4. Very promising, promotional material . . . . . _____
5. Great future growth probable; should go far . . . . . _____

INITIATIVE

1. Seeks and sets for himself additional tasks; highly ingenious. . . . . _____
2. Resourceful; alert to opportunities for improvement of work. . . . . _____
3. Does regular work without waiting for directions. . . _____
4. Sometimes needs to be prodded. . . . . _____
5. A routine worker; usually waits to be told. . . . . _____

APPENDIX IV (Continued)

WORK ATTITUDE

1. Extraordinarily enthusiastic about his work. . . . . _____
2. Shows eager interest in work . . . . . _____
3. Shows normal interest; all that is ordinarily expected _____
4. Sometimes appears indifferent. . . . . _____
5. Goes about his work half-heartedly . . . . . _____

ATTITUDE TOWARD OTHERS

1. Inclined to be quarrelsome, touchy or uncooperative; upsets morale. . . . . _____
2. Sometimes difficult to work with . . . . . _____
3. Normally tactful and obliging; self-controlled . . . . _____
4. Always congenial and cooperative . . . . . _____
5. An unusual and strong force for plant morale . . . . . _____

KNOWLEDGE OF WORK

1. Has remarkable mastery of all phases of his work . . . _____
2. Thorough knowledge of practically all phases of his work . . . . . _____
3. Adequate knowledge; knows job sufficiently well. . . . _____
4. Insufficient knowledge of some phases of job . . . . . _____
5. Has not gained adequate comprehension of his work. . . _____

ADDITIONAL COMMENTS

Please include any additional information that would help determine the value of the employee to the company.

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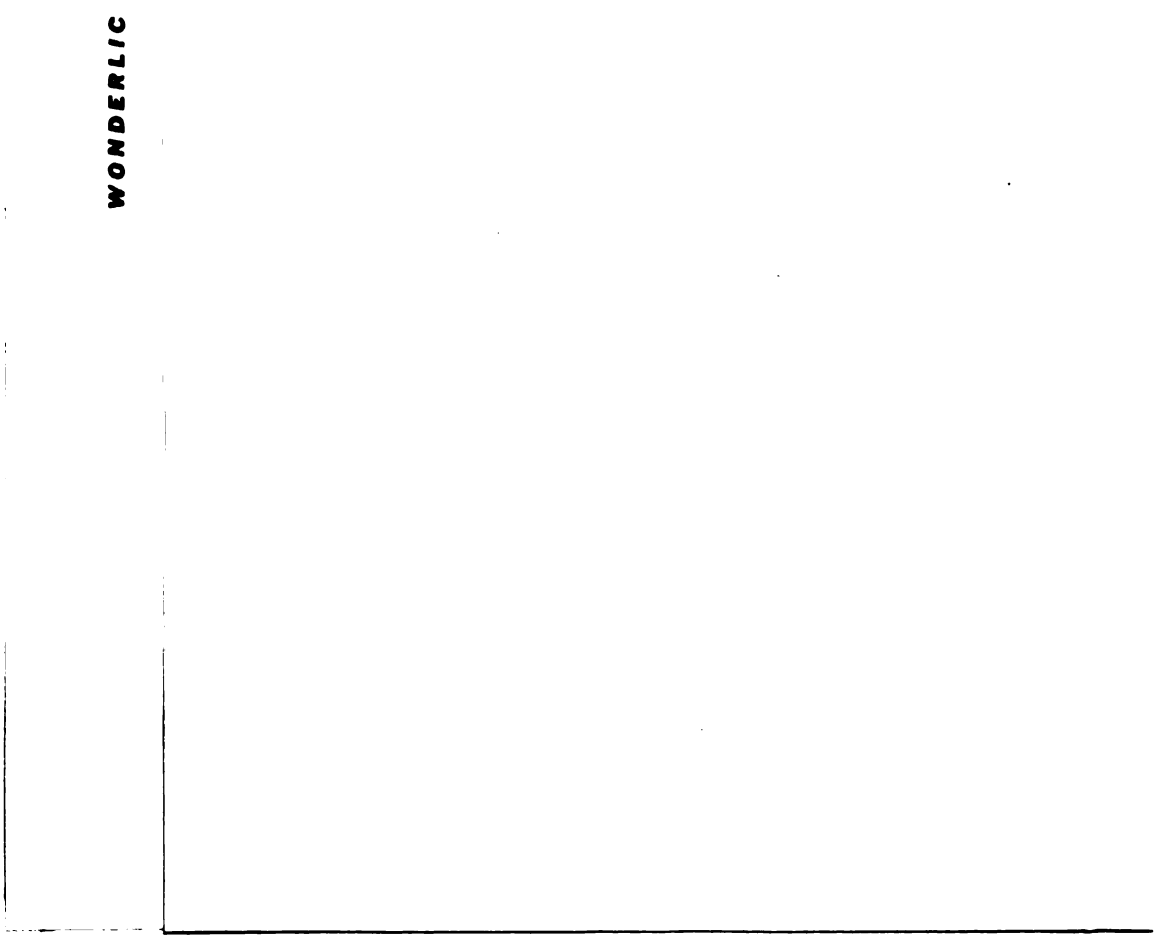
APPENDIX V



WONDERLIC

PERSONNEL TEST

FORM A

NAME.....Date.....
(Please Print)

READ THIS PAGE CAREFULLY. DO EXACTLY AS YOU ARE TOLD.
DO NOT TURN OVER THIS PAGE UNTIL YOU ARE
INSTRUCTED TO DO SO.

This is a test of problem solving ability. It contains various types of questions. Below is a sample question correctly filled in:

REAP is the opposite of

1 obtain, 2 cheer, 3 continue, 4 exist, 5 sow ..... [5]

The correct answer is "sow." (It is helpful to underline the correct word.) The correct word is numbered 5. Then write the figure 5 in the brackets at the end of the line.

Answer the next sample question yourself.

Gasoline sells for 23 cents per gallon. What will 4 gallons cost? ..... [ ]

The correct answer is 92¢. There is nothing to underline so just place "92¢" in the brackets.

Here is another example:

MINER MINOR—Do these words have

1 similar meaning, 2 contradictory, 3 mean neither same nor opposite?..... [ ]

The correct answer is "mean neither same nor opposite" which is number 3 so all you have to do is place a figure "3" in the brackets at the end of the line.

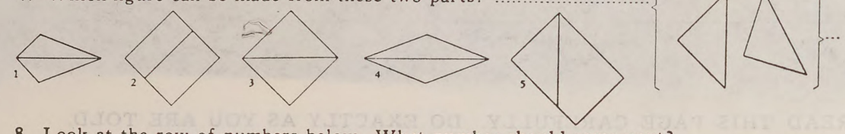
When the answer to a question is a letter or a number, put the letter or number in the brackets. All letters should be printed.

This test contains 50 questions. It is unlikely that you will finish all of them, but do your best. After the examiner tells you to begin, you will be given exactly 12 minutes to work as many as you can. Do not go so fast that you make mistakes since you must try to get as many right as possible. The questions become increasingly difficult, so do not skip about. Do not spend too much time on any one problem. The examiner will not answer any questions after the test begins.

Now, lay down your pencil and wait for the examiner to tell you to begin!

This page is not to be turned until you are told to do so.

1. The last month of the year is
   1 January, 2 March, 3 July, 4 December, 5 October ..... [___]
2. CAPTURE is the opposite of
   1 place, 2 release, 3 risk, 4 venture, 5 degrade ..... [___]
3. Most of the items below resemble each other. Which one is least like the others?
   1 January, 2 August, 3 Wednesday, 4 October, 5 December ..... [___]
4. Answer by printing YES or No—Does R.S.V.P. mean "reply not necessary"? ..... [___]
5. In the following set of words, which word is different from the others?
   1 troop, 2 league, 3 participate, 4 pack, 5 gang ..... [___]
6. USUAL is the opposite of
   1 rare, 2 habitual, 3 regular, 4 stanch, 5 always ..... [___]
7. Which figure can be made from these two parts? .....



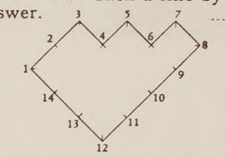
... [___]

8. Look at the row of numbers below. What number should come next?
   8 4 2 1 ½ ¼ ? ..... [___]
9. CLIENT CUSTOMER—Do these words have
   1 similar meanings, 2 contradictory, 3 mean neither same nor opposite? ..... [___]
10. Which word below is related to smell as chew is to teeth?
    1 sweet, 2 stink, 3 odor, 4 nose, 5 clean ..... [___]
11. AUTUMN is the opposite of
    1 vacation, 2 summer, 3 spring, 4 winter, 5 fall ..... [___]
12. A train travels 300 feet in ½ second. At this same speed, how many feet will it travel in 10 seconds? ..... [___]
13. Assume the first 2 statements are true. Is the final one:
    1 true, 2 false, 3 not certain?
    These boys are normal children. All normal children are active.
    These boys are active ..... [___]
14. REMOTE is the opposite of
    1 secluded, 2 near, 3 far, 4 hasty, 5 exact ..... [___]
15. Lemons sell at 3 for 10 cents. How much will 1½ dozens cost? ..... [___]
16. How many of the five items listed below are exact duplicates of each other? ..... [___]

84721	84721
9210651	9210561
14201201	14210210
96101101	96101161
88884444	88884444

17. Suppose you arranged the following words so that they made a true statement. Then print the last letter of the last word as the answer to this problem.
    always A verb sentence a has ..... [___]
18. A boy is 5 years old and his sister is twice as old. When the boy is 8 years old, what will be the age of his sister? ..... [___]
19. IT'S ITS—Do these words have
    1 similar meanings, 2 contradictory, 3 mean neither same nor opposite? ..... [___]
20. Assume that the first 2 statements are true. Is the final statement:
    1 true, 2 false, 3 not certain?
    John is the same age as Sally. Sally is younger than Bill. John is younger than Bill. [___]
21. A dealer bought some cars for $4000. He sold them for $5000, making $50 on each car. How many cars were involved? ..... [___]
22. Suppose you arrange the following words so that they make a complete sentence. If it is a true statement, put a (T) in the brackets; if false, put an (F) there.
    eggs lay All chickens ..... [___]
23. Two of the following proverbs have the same meaning. Which ones are they? ..... [___]
    1. Many a good cow hath a bad calf.
    2. Like father, like son.
    3. A miss is as good as a mile.
    4. A man is known by the company he keeps.
    5. They are seeds out of the same bowl.
24. A watch lost 1 minute 18 seconds in 39 days. How many seconds did it lose per day? .... [___]
25. CANVASS CANVAS—Do these words have
    1 similar meaning. 2 contradictory, 3 mean neither same nor opposite? ..... [___]
26. Assume the first 2 statements are true. Is the final one: 1 true, 2 false, 3 not certain?
    All Quakers are pacifists. Some of the people in this room are Quakers. Some of the people in this room are pacifists ..... [___]
27. In 30 days a boy saved $1.00. What was his average daily saving? ..... [___]
28. INGENIOUS INGENUOUS—Do these words have.
    1 similar meanings, 2 contradictory. 3 mean neither same nor opposite? ..... [___]
29. Two men caught 36 fish; X caught 5 times as many as Y How many fish did Y catch? .... [___]

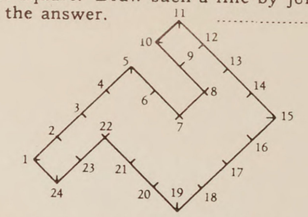
30. A rectangular bin, completely filled, holds 800 cubic feet of grain. If the bin is 8 feet wide and 10 feet long, how deep is it? ..... [___]
31. One number in the following series does not fit in with the pattern set by the others. What should that number be? ½ ¼ ⅙ ⅛ ⅑ 1/12 ..... [___]
32. Answer this question by printing YES or NO. Does A.D. mean "In the year of our Lord"? [___]
33. CREDITABLE CREDULOUS—Do these words have
    1 similar meaning, 2 contradictory, 3 mean neither same nor opposite? ..... [___]
34. A skirt requires 2¼ yards of material. How many can be cut from 45 yards? ..... [___]
35. A clock was exactly on time at noon on Monday. At 2 P.M. on Wednesday, it was 25 seconds slow. At that same rate, how much did it lose in ½ hour? ..... [___]
36. Our baseball team lost 9 games this season. This was ⅜ of all they played. How many games did they play this season? ..... [___]
37. What is the next number in this series? 1 .5 .25 .125 ? ..... [___]
38. This geometric figure can be divided by a straight line into two parts which will fit together in a certain way to make a perfect square. Draw such a line by joining two of the numbers. Then write the numbers as the answer. ..... [___]



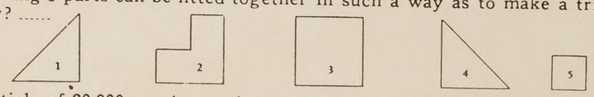
39. Are the meanings of the following sentences 1 similar, 2 contradictory, 3 neither similar nor contradictory? A new broom sweeps clean. Old shoes are easiest. ..... [___]
40. How many of the five items listed below are exact duplicates of each other? ..... [___]

Rexford, J. D.	Rockford, J. D.
Singleton, M. O.	Simbleten, M. O.
Richards, W. E.	Richard, W. E.
Siegel, A. B.	Seigel, A. B.
Wood, A. O.	Wood, A. O.

41. Two of the following proverbs have similar meanings. Which ones are they? ..... [___]
    1. You cannot make a silk purse out of a sow's ear.
    2. He that steals an egg will steal an ox.
    3. A rolling stone gathers no moss.
    4. You cannot damage a wrecked ship.
    5. It is the impossible that happens.
42. This geometric figure can be divided by a straight line into two parts which will fit together in a certain way to make a perfect square. Draw such a line by joining two of the numbers. Then write these numbers as the answer. ..... [___]



43. Which number in the following group of numbers represents the smallest amount?
    10 1 .999 .33 11 ..... [___]
44. Are the meanings of the following sentences:
    1 similar, 2 contradictory, 3 neither similar nor contradictory?
    No honest man ever repented for his honesty. Honesty is praised and starves. ..... [___]
45. For $1.80 a grocer buys a case of oranges which contains 12 dozen. He knows that two dozen will spoil before he sells them. At what price per dozen must he sell the good ones to gain ⅓ of the whole cost? ..... [___]
46. In the following set of words, which word is different from the others?
    1 colony, 2 companion, 3 covey, 4 crew, 5 constellation ..... [___]
47. Assume that the first 2 statements are true. Is the final one: 1 true, 2 false, 3 not certain: Great men are ridiculed. I am ridiculed. I am a great man. ..... [___]
48. Three men form a partnership and agree to divide the profits equally. X invests $4500, Y invests $3500 and Z invests $2000. If the profits are $1500, how much less does X receive than if the profits were divided in proportion to the amount invested? ..... [___]
49. Four of the following 5 parts can be fitted together in such a way as to make a triangle. Which 4 are they? ..... [___]



50. In printing an article of 30,000 words, a printer decides to use two sizes of type. Using the larger type, a printed page contains 1200 words. Using the smaller type, a page contains 1500 words. The article is allotted 22 pages in a magazine. How many pages must be in the smaller type? ..... [___]

APPLICATION FOR EMPLOYMENT

PERSONAL INFORMATION

DATE _____ SOCIAL SECURITY NUMBER _____

NAME _____ AGE _____ SEX _____
LAST FIRST MIDDLE

PRESENT ADDRESS _____
STREET CITY STATE

PERMANENT ADDRESS _____
STREET CITY STATE

PHONE NO. _____ OWN HOME RENT BOARD

DATE OF BIRTH _____ HEIGHT _____ WEIGHT _____ COLOR OF HAIR _____ COLOR OF EYES _____

MARRIED SINGLE WIDOWED DIVORCED SEPARATED

NUMBER OF CHILDREN _____ DEPENDENTS OTHER THAN WIFE OR CHILDREN _____ CITIZEN OF U. S. A. YES ○ NO ○

IF RELATED TO ANYONE IN OUR EMPLOY, STATE NAME AND DEPARTMENT _____ REFERRED BY _____

LAST FIRST MIDDLE

EMPLOYMENT DESIRED

POSITION _____ DATE YOU CAN START _____ SALARY DESIRED _____

ARE YOU EMPLOYED NOW? _____ IF SO MAY WE INQUIRE OF YOUR PRESENT EMPLOYER _____

EVER APPLIED TO THIS COMPANY BEFORE? _____ WHERE _____ WHEN _____

EDUCATION	NAME AND LOCATION OF SCHOOL	YEARS ATTENDED	DATE GRADUATED	SUBJECTS STUDIED
GRAMMAR SCHOOL				
HIGH SCHOOL				
COLLEGE				
TRADE, BUSINESS OR CORRESPONDENCE SCHOOL				

SUBJECTS OF SPECIAL STUDY OR RESEARCH WORK _____

WHAT FOREIGN LANGUAGES DO YOU SPEAK FLUENTLY? _____ READ _____ WRITE _____

U. S. MILITARY OR NAVAL SERVICE _____ RANK _____ PRESENT MEMBERSHIP IN NATIONAL GUARD OR RESERVES _____

ACTIVITIES OTHER THAN RELIGIOUS (CIVIC. ATHLETIC. FRATERNAL. ETC.) _____

EXCLUDE ORGANIZATIONS, THE NAME OR CHARACTER OF WHICH INDICATES THE RACE, CREED, COLOR OR NATIONAL ORIGIN OF ITS MEMBERS.

(CONTINUED ON OTHER SIDE)

FORMER EMPLOYERS (LIST BELOW LAST FOUR EMPLOYERS, STARTING WITH LAST ONE FIRST.)

DATE MONTH AND YEAR	NAME AND ADDRESS OF EMPLOYER	SALARY	POSITION	REASON FOR LEAVING
FROM				
TO				
FROM				
TO				
FROM				
TO				
FROM				
TO				

REFERENCES: GIVE BELOW THE NAMES OF THREE PERSONS NOT RELATED TO YOU, WHOM YOU HAVE KNOWN AT LEAST ONE YEAR.

	NAME	ADDRESS	BUSINESS	YEARS ACQUAINTED
1				
2				
3				

PHYSICAL RECORD:

LIST ANY PHYSICAL DEFECTS

WERE YOU EVER INJURED? GIVE DETAILS

HAVE YOU ANY DEFECTS IN HEARING? IN VISION? IN SPEECH?

IN CASE OF EMERGENCY NOTIFY

NAME ADDRESS PHONE NO.

I AUTHORIZE INVESTIGATION OF ALL STATEMENTS CONTAINED IN THIS APPLICATION. I UNDERSTAND THAT MISREPRESENTATION OR OMISSION OF FACTS CALLED FOR IS CAUSE FOR DISMISSAL. FURTHER, I UNDERSTAND AND AGREE THAT MY EMPLOYMENT IS FOR NO DEFINITE PERIOD AND MAY, REGARDLESS OF THE DATE OF PAYMENT OF MY WAGES AND SALARY, BE TERMINATED AT ANY TIME WITHOUT ANY PREVIOUS NOTICE.

DATE SIGNATURE

DO NOT WRITE BELOW THIS LINE

INTERVIEWED BY DATE

REMARKS:

NEATNESS		CHARACTER	
PERSONALITY		ABILITY	

HIRED FOR DEPT. POSITION WILL REPORT SALARY WAGES

APPROVED: 1. 2. 3.

EMPLOYMENT MANAGER DEPT. HEAD GENERAL MANAGER

PRINTED IN U.S.A.
FORM C-2 (REV.)

CARNATION COMPANY

Application for Employment and Personal History Statement

If you are employed by Carnation Company, this form will become a part of your permanent personnel record. It will be used by the company in assisting you to make progress. You are, therefore, requested to complete it carefully. The information given will be treated as confidential.
(Please do not use typewriter)

Social Security No..... Date.....

I. GENERAL HISTORY:

Name..... Date of birth..... Age.....
(Please print)

Present address.....
(Street) (City) (State)

Telephone number..... How long have you lived at this address.....

Marital Status (check one or more):

Single..... Married..... Widowed..... Divorced..... Separated..... Remarried..... Engaged..... If engaged when will you marry?.....

Number of children..... List ages: ....., ..., ..., ..., ..., ..., ..., ..., ..., ..., ..., ..., ...

In case of accident, notify: Name..... Telephone number.....
(Please print)

Address.....
(Street) (City) (State)

II. PHYSICAL HISTORY:

Height..... Weight..... Hearing..... Vision..... Color of eyes..... Color of hair.....

Date of last physical examination..... Disabilities or handicaps.....

..... Precautions as to health.....

III. EDUCATIONAL BACKGROUND:

Name and Address of School	Number of Years	Did You Graduate?	What Year?	Nature of Course Taken or Degree	Age at Leaving
Grade School					
High School					
College or University					
Graduate Study					

List any special school such as trade school, extension, business, night, or correspondence instruction and special military training.....

.....

Are you familiar with any foreign language? (Read, speak, write?)..... Scholastic Average: High School.....; College.....;

IV. SOCIAL HISTORY:

Do you live with your parents? ☐ Relatives? ☐ Wife or husband? ☐ Room-mate? ☐ Alone? ☐ Own your home? ☐

If you rent (check one): hotel ☐; apartment ☐; private home ☐

What are your interests, hobbies, amusements, leisure activities, etc?.....

.....

What is or was your father's vocation?..... Of what social clubs or organizations are you a member? (Exclude organizations of a religious, racial or foreign national character).....

.....

V. EXPERIENCE SUMMARY: Check (☒) below the kinds of work you have done. Also check the office equipment you know how to operate.

SKILLS AND FUNCTIONS

☐ Accounting	☐ Payroll	☐ Inventory	☐ Stenography	☐ Calculator	☐ Multigraph	☐ Electromatic
☐ Purchasing	☐ Cashier	☐ Personnel Clerk	☐ Filing	☐ Comptometer	☐ Mimeograph	☐ Transcriber
☐ Bookkeeping	☐ Credit	☐ Statistical Clerk	☐ Posting	☐ Nat'l Cash Payroll	☐ Key Punch	☐ Adding Machine
☐ Calculating	☐ Traffic	☐ Stock Records	☐ Mail	☐ Burroughs Bkkpg.	☐ Addressograph	☐ Check Writer
☐ Cost	☐ Advertising	☐ Switchboard	☐ Messenger	☐ Dictaphone	☐ Graphotype	☐ Tabulator
☐ Collections	☐ Receptionist	☐ Typing	☐ Teletype	☐ Sorter	☐ Typewriter	☐ Stenotype

MACHINES AND EQUIPMENT

VI. EMPLOYMENT HISTORY: List present or most recent employment first. Data must be complete and accurate. Append an additional sheet if necessary.

Firm	Period	Duties and Position?	Immediate Superior and His Title?	Reason for Leaving?
Name	FROM			
Address	TO			
Business	MONTHLY WAGE			
Name	FROM			
Address	TO			
Business	MONTHLY WAGE			
Name	FROM			
Address	TO			
Business	MONTHLY WAGE			
Name	FROM			
Address	TO			
Business	MONTHLY WAGE			

What kinds of work do you feel you can do well?.....

What type of work would you like most to do?.....

Do you have any special knowledge of the dairy and/or cereal industry?.....

VII. WAR SERVICE HISTORY: (Leave this section blank if you have no record of war service.)

Date of induction.....Type of discharge.....

Highest rank (or rate) attained.....Rank (or rate) at time of induction or commission.....

Overseas Duty?.....Further Comment on War Record.....

.....

VIII. ECONOMIC AND FINANCIAL HISTORY:

Are you now employed?.....Husband's or Wife's occupation.....

About what earnings would seem reasonably satisfactory to you? To start with? $..... After five years? $.....

Names of relatives or acquaintances in our employ.....

IX. REFERENCES: (Give five references other than relatives or former employers.)

Name	Business	Position	Address	Telephone	How Long Known
1.					
2.					
3.					
4.					
5.					

X. REMARKS: (Use this space for any information you feel Carnation Company would care to have about you or to amplify data furnished above.)

.....

.....

.....

Signature.....