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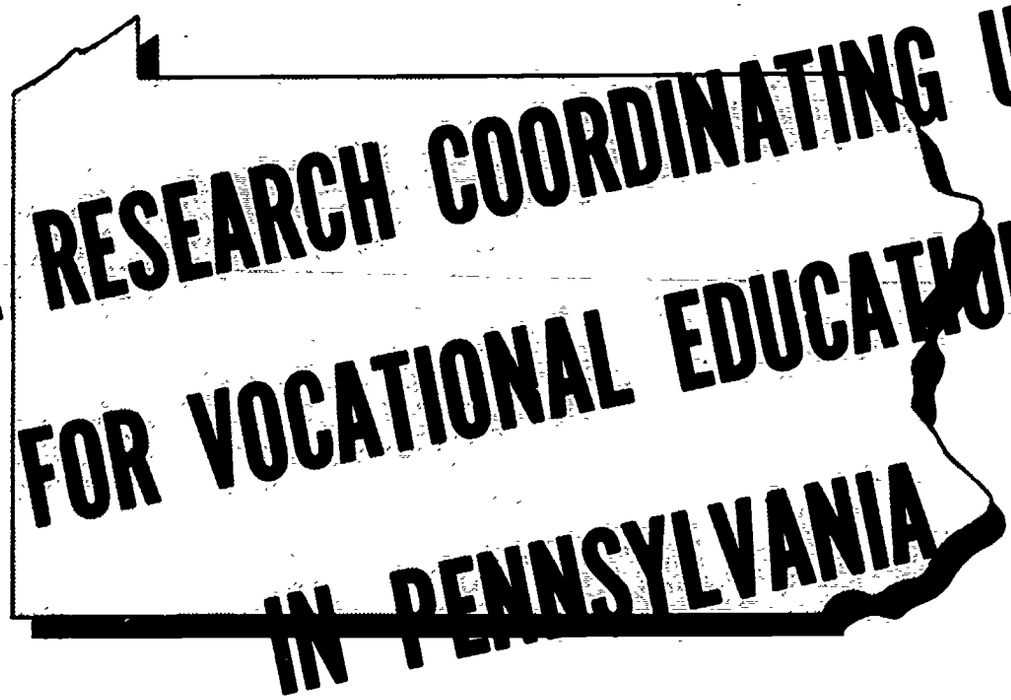
ABSTRACT

This annual report presents an overview and brief descriptions of the activities of the Pennsylvania Research Coordinating Unit for fiscal year 1972. The narrative section touches on the research and exemplary projects monitored, conferences held, career education projects, and other concerns. The appendix contains an annotated listing of all funded research and research-related projects in the fiscal year by project number, agency or person, title, and amount funded. (MF)

FINAL REPORT



FISCAL YEAR 1972

(JULY 1, 1971 — JUNE 30, 1972)

FINAL REPORT

FOR FISCAL YEAR 1972
(JULY 1, 1971 - JUNE 30, 1972)

THE RESEARCH COORDINATING UNIT

FOR VOCATIONAL EDUCATION IN PENNSYLVANIA

Dr. Ferman B. Moody, Director

JULY 1972

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
BUREAU OF ADULT, VOCATIONAL AND TECHNICAL EDUCATION
PROGRAM DEVELOPMENT AND OPERATIONS BRANCH

STAFF SUMMARY FOR FISCAL 1972

DEPARTMENT OF EDUCATION

Dr. John W. Struck . . . . . State Director of Vocational Education

Dr. Robert B. Hayes . . . . Director of Bureau of Educational Research

RCU STAFF

Dr. Ferman B. Moody . . . . . Director

Dr. Carroll A. Curtis . . . . . Research Associate

Dr. Clarence A. Dittenhafer . . . . . Research Associate

Dr. Stephen J. Franchak . . . . . Research Associate

Mr. Robert Goldberg . . . . . Systems Analyst

Mr. James P. Lewis . . . . . Research Assistant

Mr. John K. S. Senier . . . . . Research Assistant

Mrs. Jeanne Brownewell . . . . . Stenographer

Miss Deborah Runkle . . . . . Stenographer

Mrs. Donna Wieseman . . . . . Stenographer

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INTRODUCTION

The Pennsylvania Research Coordinating Unit is one of four divisions within the Bureau of Educational Research in the Department of Education. The RCU is administratively responsible to both the Director of the Bureau of Educational Research and the State Director of Vocational Education. The organizational structure has allowed the RCU staff to communicate effectively and to maintain an excellent working relationship with personnel in both bureaus.

The general objectives of the RCU are to:

1. Stimulate and encourage occupational education research and development activities in Pennsylvania;

2. Coordinate occupational education research conducted within Pennsylvania;

3. Disseminate information on progress and results of occupational education research and

4. Plan and conduct needed occupational education research when other agencies are reluctant to do so.

The purpose of this final report is to present an overview and brief description of the activities of the RCU for federal fiscal 1972 (July 1, 1971 - June 30, 1972).

EXEMPLARY, RESEARCH AND RELATED ACTIVITIES

Research and Related Projects

One of the major objectives of the RCU is to coordinate occupational education research activities conducted within Pennsylvania. The RCU assists in the review and approval of proposals submitted by agencies seeking funds from the Bureau of Vocational, Technical and Continuing Education.

The RCU has the major responsibility for receiving and reviewing proposals and for monitoring approved projects. A substantial increase in funding requests has necessitated more staff time being spent in reviewing and evaluating proposals. In federal fiscal 1972, 85 research and exemplary proposals were approved for funding from the BVTCE for research and related activities. Some of these projects were completed during 1971-1972 school year, others were approved in advance for operation during the 1972-1973 school year. The projects were submitted by local school districts, county offices, colleges, universities and individuals who received mini-grants for masters' or doctoral studies.

If a proposal is funded, the RCU staff works closely with the project director to accomplish the proposal objectives. Progress in the project is ascertained through periodic reports and visits by RCU personnel. If a proposal is disapproved or modification is requested, the RCU staff informs the submitting agency of the action. A disapproval requires written notification with substantiation. Other possible funding sources may be noted in the letter of disapproval. If modification of a proposal is suggested by the reviewers, an RCU staff person works with the submitting agency to revise the proposal. When the necessary revisions are completed, the proposal can be resubmitted for funding consideration.

An abstracted listing of the funded projects through the RCU during federal fiscal 1972 appears in Appendix A. The projects are described by:

1. Project Number
2. Agency and Person
3. Title and Abstract
4. Amount of Funds

Exemplary Projects

The RCU has been working cooperatively with the Division of Vocational Guidance in the Bureau of Pupil Personnel Services, Pennsylvania Department of Education, on several exemplary projects. One project is the modification and development of a statewide occupational information program known nationally as Vital Information for Education and Work.

The Pennsylvania adaptation of the VIEW concept is known as PENNscripts. The RCU assisted in the development of approximately 200 information scripts for the project. The unique feature of PENNscripts is the final page of each script. This last page contains specific information (salary, current job market, future trends) for the various Bureau of Employment Security offices in Pennsylvania. The localized information is completed for eight labor market areas in Pennsylvania. Information for the other labor market areas in the state is in various stages of processing and should be completed by December 1972.

The decks are free to schools with access to a microfiche reader or reader-printer. To date, 183 requests from schools have been processed. In addition to requests by schools in the labor market area, PENNdecks can be found in community colleges, state colleges and universities, the state library, Bureau of Employment Security offices, intermediate units and counselor education departments.

Another area where the RCU is assisting the Division of Vocational Guidance is the development of career resource centers. Five exemplary career resource centers completed their second year of operation as of June 30, 1972. These centers are an attempt to improve the approach to providing career information resources to students within the school settings of the Commonwealth of Pennsylvania. The CRCs are demonstrating a realistic process by which all students will have increased utilization of the information and resources vital to the decision-making points of the career development process.

The RCU supported two other projects with exemplary monies. One of these was at Hazleton Area Vocational-Technical School. The project involved the development and utilization of video tapes for dissemination of occupational information through regional industrial participation. The purpose was to bring the real world of work into the classroom via video tapes.

The final exemplary activity was a distributive education project at the University of Pittsburgh. The purpose of the project was to develop simulation packages for teaching distributive education in school districts which have little or no opportunity to place students in training stations. The materials might have application for disadvantaged and handicapped students who are difficult to place on these jobs.

National RCU Directors' Conference

Two representatives from Pennsylvania attended the National RCU Directors' Conference held in New Orleans on March 20 through 23, 1972. The conference featured presentations from each of the field sites of the Ohio State Center career education project. This presentation was essential to our understanding of the national program.

Dr. Ferman Moody from Pennsylvania was elected at the annual business meeting to serve as president of the organization for the 1972-1973 year.

State Plan

The Pennsylvania RCU participated in the preparation of the research, exemplary and manpower sections of the Pennsylvania State Plan for Vocational Education.

Career Education Projects

The U.S. Office of Education announced approval of a school-based career education program for Pennsylvania. This program had been submitted by the Pennsylvania Department of Education as assurance that career education would be the major focus of research efforts during the current year. This approval meant that the Pennsylvania Department of Education received the $498,124 allotment from the commissioner's share of the research funds.

The program submitted for effective use of these funds was developed cooperatively by staff from the RCU, the Bureau of Vocational, Technical and Continuing Education, the Federal Education Project Center in Meadville, the Admiral Peary AVTS and the school districts of Philadelphia and McKeesport. The total package is designed to provide emphasis of one project in each of the three grade levels (i.e., elementary, junior and senior high schools) and a fourth program encompassing all levels. This coordinated dual approach should provide many useful and generalizable tactics for achieving the objectives of career education.

Although the projects are all reaching toward the same ultimate goal--a complete career education program--the methodology at each site differs. These variations in methodology may be important features for providing alternative solutions to future implementation.

The four districts were selected on the basis of their previously expressed interest and commitment to the principles of career education, the variations they provided with respect to age-grade focus and social, economic and geographic considerations.

Meadville--The goal of this project is to develop and implement a model career-oriented curriculum for use at the K-6 level. This curriculum will be developed around occupational clusters by teams of teachers, guidance counselors, consultants and an advisory committee from the community. It will focus on career awareness, self-awareness and personal, social and economic significance of work.

The specific objectives of the project are to:

1. Integrate career and self-awareness with the basic academic materials of the K-6 grade levels.

2. Expose each pupil to a range of career clusters within the context of maturity level.

3. Individualize the learning program for each of the pupils to meet their interests and concerns.

4. Demonstrate the feasibility of using existing computer facilities for storage and retrieval of career-oriented curricula.

Philadelphia--A total instructional program oriented to career and self-exploration will be developed including the following elements:

1. Career exploratory experiences outside the school building and related "hands-on" experiences in school.

2. A curriculum in school which provides for integration of exploratory experiences and use of other career-related resources.

3. A guidance and counseling program to assist pupils to use the exploratory and curricular experiences in career planning and decision-making.

4. Placement for pupils terminating formal education at the junior high level.

Ebensburg--This project will develop and implement a career preparation program utilizing a flexible scheduling arrangement to facilitate an unlimited number of career offerings. The scheduling arrangement will utilize educational module (or unit) descriptions and computer programs which, when put together, will allow the student and counselor to tailor an individualized occupational program to the abilities and aspirations of each student.

The project will also feature a placement service for students to provide: cooperative work experience, full-time occupational placement, educational placement, part-time and summer employment, employer contacts and follow-up.

McKeesport--At the elementary school level, two units in career education will be developed and implemented for each grade. The focus of the units will be to develop favorable attitudes toward work, an awareness of the importance of work to the individual and an introduction to the broad range of career options.

At the junior high level, the chief objectives of the program will be to help students begin the process of focusing on a narrower range of occupational choices and to offer a variety of "hands-on" experiences.

At the senior high level, an attempt will be made to help each of the students identify a single occupational cluster as their area of interest. The program of studies will be geared to these occupational clusters and during their senior year they will have an opportunity to have a work experience of at least nine weeks in an occupation in their chosen occupational cluster. The guidance component will include a placement office to serve students desirous of entering the world of work before or upon graduation.

An organizational meeting has been held involving all of the project directors and staff from the Pennsylvania Department of Education. This meeting was the basis for further communication and coordination of the program. The project directors, as a group, also testified before a committee on career education from the Pennsylvania House of Representatives.

Dissemination Activities

VEIN--The Pennsylvania RCU has developed a model for the statewide dissemination of research and related information to vocational educators. The dissemination project was developed in concert with the cooperative effort involving the Center for Vocational and Technical Education at The Ohio State University and RCU's in California, New Jersey, New York, Nevada, Oklahoma and Wisconsin.

The Vocational Education Information Network operates at Millersville State College in the Department of Educational Media. VEIN's staff and facilities are housed in the Ganser Library at the college. Information services conducted include workshops and presentations throughout the state to acquaint educators with the capabilities of information systems and the wide range of information available to them. Administrators, counselors, librarians, teachers, researchers and advisory group personnel are counted among the growing number of persons requesting information searches. In addition to these precise searches, other information is directed to individuals and groups on a selective basis (SDI concept). Articles and documents are reproduced from the basic collection of over 70,000 ERIC documents, periodicals and local research reports. Printed copy is sent when microfiche reading equipment is not available.

A computer-based search technique has been developed to expedite the custom searches performed by the information specialists. Public relations activities include advertising and audio-visual techniques to increase the visibility of the information and dissemination services for its targeted audience of vocational and career educators.

VEIN cooperates with other information systems in the state and nation to promote utilization of documented information. A human resource file is also being generated to quickly identify persons with special capabilities and knowledge. Efforts have also been initiated to assist residents within the state to locate appropriate vocational and technical programs, and to alert program directors to the vocational needs of previously unidentified potential students.

RCU Reporter--The RCU continued to publish and distribute the RCU Reporter during fiscal 1972. The newsletter has proven to be a valuable tool to disseminate research and research-related information to 6,500 interested educators. It is also designed to bridge the "utilization gap" between researchers and practitioners. The newsletter conveys general information from the BVTCE and related agencies.

Two standard features in the newsletter are the State Director's Column and Clip and Save. The former is written by Dr. John W. Struck, State Director of Vocational Education. The latter features annotated bibliographies of outstanding research projects and publications. Each quarterly issue of the newsletter also includes short summaries of research projects that have been funded by the RCU and activities of the BVTCE program staff.

A Model for State and Local Program Planning and Evaluation in Vocational Education

The purpose for developing this model was to provide a systematic method for state departments of education to help local school districts establish better planning capacities to cope with short- and long-range vocational education program planning problems.

It incorporates three planning levels. These are the socio-economic planning, vocational education program planning and vocational education resources planning. The model uses a manpower requirements approach which incorporates occupational projection techniques developed by the Bureau of Labor Statistics, U.S. Department of Labor and modified by the Pennsylvania Bureau of Employment Security. The approach makes possible matching of educational graduate supply with occupational requirements. This model utilizes labor market supply and demand information to provide local level planners an opportunity to (1) assess the relationships of present vocational education programs to labor market needs and (2) develop a future program that will tend to reduce such discrepancies. Plans for refinement of the model and updating of data sources are presently being conducted.

A revised edition of the publication, "Planning Vocational Education Programs in Pennsylvania: Guidelines for the Use of Labor Market Information," has been published.

Summary of Pennsylvania Population Growth and Net Migration Study: 1960-1970

This study was undertaken to determi[illegible] ti[illegible] past migration loss for Pennsylvania continued during the de[illegible] 1960-1970. The other factors considered in the study are: (1) counties most affected by net migration and (2) age and sex groups contributing most to net migration.

The results of the study are contained in the report, "Pennsylvania Population Growth and Net Migration 1960-1970."

Included in the report is a detailed explanation of methodology used for determining net migration for an area by age, by sex and for total.

Job Placement Service Model

The purpose of the project was to design a comprehensive job placement program for public secondary schools which offer vocational-technical programs.

The project emphasizes methods to identify and use information from students, school staff, business and industry, governmental agencies, organizations and existing placement programs and services.

Specific questions directed to the project include:

- What provisions exist in public schools for job placement?
- What articulation is needed between educational placement and job placement?
- What resources are needed for the development, operation and evaluation of an effective job placement service?
- What are the personnel needs for developing and operating a comprehensive job placement service?

The project could provide public secondary schools with a model from which a placement service could operate providing effective educational and job placement services based on student needs and interests.

CONFERENCES

During the past year, members of the RCU staff have attended various meetings and conferences. The major conferences are listed below:

1. National RCU Directors' Conference--New Orleans, Louisiana
2. USOE Regional Conference on Disadvantaged and Handicapped--Philadelphia, Pennsylvania
3. Curriculum Workshop for AVTS--Ebensburg, Pennsylvania
4. American Vocational Association Conference--Portland, Oregon
5. Exemplary Project Coordinating Conference--Columbus, Ohio
6. Pennsylvania Education Research Association Spring Meeting--The Pennsylvania State University
7. Pennsylvania Industrial Arts Association Conference--Camp Hill, Pennsylvania
8. Vocational Administrators of Pennsylvania Conference--Carlisle, Pennsylvania
9. Simulation Trainers' Workshop--Ohio State University
10. Lancaster County Career Education Workshop--Brownstown, Pennsylvania
11. Educational Congress--Pennsylvania Department of Education, Harrisburg, Pennsylvania

FUTURE ACTIVITIES

Some of the major activities planned for federal fiscal 1973 are:

1. To review exemplary and research and related proposals submitted to the RCU and take appropriate action relative to funding.

2. To monitor projects approved during the past and current fiscal year.

3. To follow-up and assist with the dissemination of results of worthwhile research activities.

4. To continue to keep abreast of developments in the follow-up phase of the Vocational Education Management Information System (VEMIS) and to apply such findings to research policy.

5. To develop and implement a strategy for expanding career education model activities to a large number of school districts in the Commonwealth.

6. To continue to cooperate with the Center for Vocational and Technical Education at the Ohio State University and Millersville State College to expand and evaluate the services and activities of VEIN.

7. To continue to cooperate with the Division of Vocational Guidance in the development of PENNscripts and the operation of education resource centers.

8. To continue to update and revise occupational projections by labor market area in cooperation with the Office of State Planning and Development and Department of Labor and Industry through utilization of the 1970 census data.

9. To stimulate and encourage the development of occupational education research at all levels in the state.

10. To plan and initiate the development of guidelines for the implementation of the vocational-technical education program planning model in local schools.

11. To pursue the development and implementation of modular scheduling in area vocational-technical schools via a demonstration project.

12. To continue to assist the BVTCE and Bureau of Educational Research in related activities.

13. To attend and participate in workshops, meetings and conferences which will enhance the competencies and working relationships of the RCU staff.

14. To communicate often with BVTCE personnel and discover new techniques for providing greater research services.

APPENDIX A

AN ABSTRACTED LISTING OF
RESEARCH AND RESEARCH-RELATED PROJECTS
FOR THE FISCAL YEAR 1971-1972

FUNDED BY THE PENNSYLVANIA
BUREAU OF VOCATIONAL, TECHNICAL AND CONTINUING EDUCATION

MONITORED BY THE PENNSYLVANIA
RESEARCH COORDINATING UNIT

Project No.	Agency/Person	Title/Abstract	Amount
19-1001	Pennsylvania Health Council Mr. Raymond Clugh	"Practical Nursing Licensing Examination Achievement Relationship to Work Performance and Retention" The project is designed to make a comprehensive study of the practical nursing licensing examination in Pennsylvania. Some of the variables to be considered are: examination achievements, job satisfaction, job retention, faculty qualifications, social economically disadvantaged students, personal and academic characteristics.	$25,102.00
19-1002	Gannon College Dr. William Culp	"Project GIVE" Project GIVE will train experienced teachers and counselors who work with children in grades 3 through 6 to develop and use a vocational guidance program in their school.	$29,157.00
19-1003	Indiana University of Pennsylvania Mrs. Alma Nagle	"The Status of Future Business Leaders of America (FBLA) Chapter Activities in the State of Pennsylvania (1967-1970)" The purpose of this project is: determine the status of FBLA activities in Pennsylvania; to provide chapters with information and ideas of successful activities in other chapters; to determine the reasons	$ 685.00

Project No.	Agency/Person	Title/Abstract	Amount
19-1003 (continued)		for chapter success in the identified activities; and to assess the advisor's contribution to the success of the clubs.	
19-1005	Bloomsburg State College Mr. Frank Davis, Jr.	"An Educational Application of Queueing Theory" The purpose of the study is twofold: first, to develop a simulation model applicable to the investigation of interrelationships between students and teachers in the individualized classroom; and second, to gather data and simulate two types of classrooms utilizing the resulting computer printout.	$ 975.00
19-1006	Central Chester County Vocational-Technical School Mr. Robert Stewart, Jr.	"Development and Preparation of Chemical Technology Course Manual Volume I" This proposal has the specific objectives to prepare Volume I of a secondary level chemical technology course manual.	$ 4,906.00
19-1007	Temple University Dr. Marvin Hirshfeld	"Cooperative Program for Disadvantaged Youth" The project will attempt to bring available manpower from a pool of unemployed disadvantaged youth who	$92,466.00

Project No.	Agency/Person	Title/Abstract	Amount
19-1007 (continued)		have left regular education to an equal number of employment shortages identified by the business community.	
19-1008	Pittsburgh Public School District Mr. Jesse Bounds	"Slides as a Visual Supplement to the Carpentry Curriculum" This project is to prepare a relevant visual supplement of 35 mm colored slides for the vocational carpentry curriculum. The slides will depict the various stages of house construction from foundation to completion.	$ 490.00
19-1009	Temple University Mr. Robert Klingler	"An Assessment of the Adequacy of Vocational, Technical and Industrial Education Programs in Secondary Schools of Pennsylvania in Meeting Dropout Prone Students' Needs" The purpose of the study is to determine how present programs in vocational-technical education are meeting the preemployment training needs of dropout prone students who are enrolled in the secondary schools of Pennsylvania.	$ 1,000.00
19-1010	Bucks County Intermediate Unit Dr. James Ross	"Supervised Independent Study Program" The purpose of the program is to provide educational opportunities for the disadvantaged and handicapped	$39,850.00

Project No.	Agency/Person	Title/Abstract	Amount
19-1010 (continued)		individuals residing in Bucks County; specifically, the program will provide a vehicle for supervised independent study for the school dropout, the unemployed and the underemployed, the socially and culturally disadvantaged and for persons with special needs not currently being met in the formal education program.	
19-1011	Pittsburgh Public School District Mr. Robert Easley	"A Study to Determine the Effectiveness of the Laboratory Technician Program in Placing Students in This or Any Related Paraprofessional Health Field" The purpose of this project is to survey and evaluate a lab technician program at the secondary level. Survey results will be used to determine program viability, techniques for students and health occupations needs.	$ 385.00
19-1012	The Pennsylvania State University Dr. Samuel Curtis	"Education in Agriculture for the Educationally Disadvantaged" The project will prepare educational materials and teachers in agriculture to teach educationally disadvantaged students in vocational agriculture classes.	$29,700.00

Project No.	Agency/Person	Title/Abstract	Amount
19-1013	The Pennsylvania State University Dr. Joseph Impellitteri	"A Longitudinal Study of Vocational Development and Program Evaluation: Implications for Curriculum Planning and Vocational Guidance" The purposes of the project are: to provide feedback about the in-school achievement and development of selected youth, as related to their initial characteristics and the nature of the courses of study in which they are enrolled.	$50,000.00
19-1014	Central Columbia School District Mr. Carl Everett	"Development of Modular Courses in Vocational Curriculum" Intent of the project is to develop course offerings in modules of multiples of three-weeks' duration to facilitate course organization. Concurrently, an individualized vocational guidance program will be developed. The study variables include the effect of modular scheduling on cooperative occupational experience programs, vocational club activities and enrollment patterns of students with various occupational objectives.	$16,050.00
19-1015	The Pennsylvania State University Dr. Edwin Herr	"The Development of Selection Models for Pennsylvania Area Vocational-Technical Schools--Phase I, The Uses of Available Data"	$31,461.00

Project No.	Agency/Person	Title/Abstract	Amount
19-1015 (continued)		The purpose of the proposed investigation is threefold: first, to identify the degree to which specific courses require similar student characteristics across a stratified sample of area vocational-technical schools in Pennsylvania; second, to identify those student characteristics which are predictive of student membership in different curricular groups in a stratified sample of area vocational-technical schools in Pennsylvania; and third, to identify those variables which are predictive of different student achievement levels within curricular groups in a stratified sample of area vocational-technical schools in Pennsylvania.	
19-1016	The Pennsylvania State University Dr. Thomas Powers	"Development of a Validated Instructional System for Hospitality Education" The purpose of the project is for the development of a prototype instructional system in hospitality education at the postsecondary level. The program substitutes controlled field experiences for portions of the traditional laboratory experiences.	$28,434.00

Project No.	Agency/Person	Title/Abstract	Amount
19-1017	Hazleton Area School District Mr. Paul Wensko	"Orientation and Implementation of Basic Skills Affiliated with Trade and Industrial Careers" The project will serve to: 1. Orient incoming sophomores to the desired trade 2. Establish basic trade skills for educationally disadvantaged and special education students. Hopefully, it will lead to a mature career decision.	$ 3,300.00
19-1018	Pottstown School District Mr. William Smith	"G.A.T.B. Testing for Vocational Placement into Vocational Education Courses" School personnel will use the G.A.T.B. to test students in the 9th grade who apply for entrance into the vocational department and students undecided regarding placement. The aptitude test will be administered to the above students for improved placement in senior high school vocational training areas.	$ 910.00
19-1020	Lenape Area Vocational-Technical School Mr. Edwin Riebel	"A Functional Approach to the Study of English for the Auto Shop Student" The project is to develop an English workbook for students enrolled in the auto mechanics course at Lenape Area Vocational-Technical School.	$ 500.00

Project No.	Agency/Person	Title/Abstract	Amount
19-1021	Admiral Peary Area Vocational-Technical School Dr. Bryan Fluck	"A Laboratory and Curriculum Design for the Newly Emerging Technology of Pollution-Corrosion Measurement and Control" To study areas of corrosion and pollution as they affect industry, utilities, mining and agriculture; and to develop a comprehensive instructional program in these areas of ecology.	$16,500.00
19-1022	Johnsonburg Area Schools Mr. Thomas Taylor	"A Program to Train Workers in the Production, Harvesting, Processing and Marketing of the Woodland Crop and the Manufacturing of Paper from the Crop" To determine the makeup of a curriculum and to determine the basis of a program in forest industries for the 1971-72 school term.	$ 6,820.00
19-1023	Temple University Mr. James Adams	"Development of Occupational Information Materials for Spanish-Speaking Children" The project will identify, develop and translate relevant occupational materials for the use of Spanish-speaking children.	$32,095.00
19-1024	The Pennsylvania State University Dr. Curtis R. Finch	"Troubleshooting Instruction in Vocational-Technical Education Via Dynamic Simulation"	$ 1,810.00

Project No.	Agency/Person	Title/Abstract	Amount
19-1024 (continued)		The project is an extension of a previously funded proposal. The proposal provides for final report development, printing and dissemination of the results of the previous simulation study.	
19-1025	Meadville Area School District Mr. James Peters	"Unifying and Individualizing Vocational Education (Developmental Phase)" This project is a student-centered program which will: 1. Articulate the learning process with the vocational-technical world as the core 2. Concern itself with the skills, the growth and development, the interests and needs and the self-image of the student 3. Individualize the learning program for each student to meet his interests and concerns through a computer retrieval system. In addition, this project will provide a coordinated program utilizing at least one vocational-technical school and seven local high schools.	$43,750.00
19-1026	Admiral Peary Area Vocational Technical School Dr. Bryan Fluck	"A Modular Scheduling Program for Vocational-Technical Schools: A Demonstration Model"	$55,160.00

Project No.	Agency/Person	Title/Abstract	Amount
19-1026 (continued)		The purpose of this project is to develop the materials and gain the experience necessary to demonstrate a complete vocational program based on the concept of building toward one's own career objectives by selecting, as an individual, needed skills and knowledge modules or units from the total vocational offerings. Occupations will be analyzed in terms of what skills and knowledge are necessary for entry and advanced levels of competence. The vocational program of each pupil will be made up individually of those course segments that best fit his occupational objectives.	
19-1027	School District of Philadelphia Dr. John Peper	"A Study of the Vocational and Technical Education Program Curriculum Structure in the Philadelphia Public Schools" A Research Survey of the Administrative and Curriculum Structure of the Vocational and Technical Program in the Philadelphia Public Schools with detailed recommendations for change. This will include component reports in the following areas to insure that the program is meeting the needs of youth, pertinent to the local labor demands and provides flexibility to choose from a cluster of related occupations. The component reports are:	$50,000.00

Project No.	Agency/Person	Title/Abstract	Amount
19-1027 (continued)		1. Report on first entry job classifications 2. Projections of job needs 3. Report of first entry skills 4. Report of second and third level skills 5. Report of projected graduates 6. Summary of job clusters 7. Recommendations for longitudinal studies 8. Recommendations for additional research projects.	
19-1028	Pittsburgh City Schools Dr. R. G. Lamping	"Revision and Development of Skill Area Teacher Competency Test Materials" Under the leadership of a research and test development consultant, teacher test development teams consisting of two master teachers of each skill area, assisted and advised by craft advisory committee members, will review and evaluate the existing material to revise and/or adopt new material as necessary to result in final-form teacher competency tests in ten skill areas.	$24,986.00
19-1029	Pennridge School District Mrs. Natalie P. Nichols	"Open Space Concept in Business Education" The purpose of this project is to develop an innovative business education program by using an Open Space Concept.	$16,617.00

Project No.	Agency/Person	Title/Abstract	Amount
19-1031	The Williamson School Mr. John S. Boyd	"Systems Laboratory Research Program" The purpose of this project is to design and construct equipment to monitor and control a systems circuit. The procedure for analyzing, isolating and correcting the faults within a system will be emphasized.	$ 4,000.00
19-1032	Neshaminy School District Dr. Joseph E. Ferderbar	"Exemplary English/Language Arts Curriculum Development Program for Vocational-Technical Education Students" The purpose of this project is to develop micro-courses which summarize objectives, activities, learning strategies employed and materials and equipment used in a sequentially structured English/Language Arts program of experiences that will be more relevant to vocational-technical school students' needs.	$18,947.90
19-1033	Chestnut Ridge School District Mr. Ted Amick	"A Research Program to Determine the Effective Use of Closed-Circuit Video Tapes in an Agricultural Teaching Situation" The purpose of this project is to determine what areas of study in the vocational agriculture classes can be taught with greater student learning with the use of televised closed-circuit video tape compared to teaching	$ 8,371.54

Project No.	Agency/Person	Title/Abstract	Amount
19-1033 (continued)		the same areas of study to vocational agriculture classes without the use of televised closed-circuit tape.	
19-1034	Pennsylvania Health Research Institute, Inc. Mr. William B. Boswell	"Preplanning Project, Health Services Core Curriculum" The goal of this project is to formulate an integrated planning implementation project for the development of a health occupations core curriculum model for urban secondary students.	$55,400.00
19-1035	West Chester State College Dr. M. J. Higgins	"An Experimental Program to Provide In-Home Vocational Training in Preschool and Day Care Work for Unskilled Disadvantaged Mothers and Child-Caring Adults" This study will investigate the merits of an in-home vocational training program in the high priority area of preschool day care work in comparison with a similar program offered at a central location as part of 4-C Interagency Manpower Training Program.	$ 9,210.00
19-1036	The Pennsylvania State University Dr. Angelo C. Gillie	"A Supply/Demand Model for Vocational Education Planners" This is Phase I of a two-phase project that will attempt to generate manpower supply/demand information combined with a systems approach for evaluating the	$13,622.00

Project No.	Agency/Person	Title/Abstract	Amount
19-1036 (continued)		information. It is expected that this information will be a useful input for vocational educators in planning curricula. It is anticipated that the supply/demand model will be able to render occupational information for 10 years.	
19-1037	Altoona Area Vocational-Technical School Mr. Daniel A. Clark	"Instrumentation and Industrial Technology" This project will result in the development of course curricula in the areas of instrumentation and industrial technology. Planning and development will be a cooperative effort between the Altoona Area Vocational-Technical School and the Altoona Campus of The Pennsylvania State University. This cooperation should insure a comprehensive educational program in the preparation of the postgraduate students in these technologies.	$18,236.00
19-1039	Mansfield State College Mrs. Charlotte J. Farris (Mini-Grant Type A)	"Changes in Student Teachers' Classroom Verbal Behavior as a Result of Pupil Feedback" The study will involve two groups of home economics student teachers at Mansfield State College. Through the use of a feedback instrument, pupils will supply one group of student teachers with information concerning	$ 912.15

Project No.	Agency/Person	Title/Abstract	Amount
19-1039 (continued)		their use of direct and indirect classroom behavior. Pre- and post-interaction analysis data will be compared with a control group.	
19-1040	Temple University Mrs. Ruth K. Horwitz	"Simulated Office Evaluation" This study will compare the effectiveness of the high school office practice program which includes a simulated office experience to the office practice program without the simulated office. The two groups will be compared on: 1. Office Employment Expectations (Attitude toward a job) 2. Clerical Abilities 3. Job Satisfaction 4. Job Performance	$ 1,450.00
19-1041	Berks County AVTS Mr. C. R. Zimmerman	"Developmental Research to Determine Employment Opportunities and Occupational Competencies Needed in Off-Farm Agricultural Occupations in Berks County" The major goals of the project are to: 1. Determine employe needs of industry for trained and semi-trained personnel in agricultural occupations 2. Determine competencies needed by employes of the agricultural businesses.	$10,718.44

Project No.	Agency/Person	Title/Abstract	Amount
19-1041 (continued)		3. Determine availability of students for this training 4. Determine adult program opportunities.	
19-1042	The Pennsylvania State University Dr. Thomas E. Long	"Determination of the Basic Mathematical Skills Needed for Secondary Vocational Education Students" This study will utilize a sample of about 10,000 teachers to try to determine which basic mathematics skills are necessary for success in various secondary programs and in which areas most remedial attention is needed by entering students.	$ 8,960.00
19-1043	Pittsburgh School District Miss Alma B. Evans (Mini-Grant Type A)	"The Design and Rationale of a Simulated Experience for Middle School Students in Exploratory Career Orientation Curriculum" The purpose of the project is to explicate the design and rationale of an interdisciplinary curriculum linking the areas of home economics, business education and industrial arts for career information utilizing a simulated "world of work" environment.	$ 1,000.00
19-1044	Lancaster County AVTS - Brownstown Mr. Garland Gingerich	"School-Based Job Placement Service Model: Phase I - Planning"	$27,910.00

Project No.	Agency/Person	Title/Abstract	Amount
19-1044 (continued)		The purpose of this project is to develop a model for a school-based job placement service to be operated on a full-time basis. Its development will be based upon an analysis of socioeconomic data, demographic data, occupational graduates and trainees and occupational needs of a defined geographic area.	
19-1045	Pittsburgh Public Schools Mr. Van Hughes (Mini-Grant Type B)	"Investigation of Vocational Opportunities in the Printing Industry" The purpose of this project is to improve the career information materials for the printing industry.	$ 425.00
19-1046	Pittsburgh Public Schools Miss Lois L. Marcello (Mini-Grant Type B)	"Video Tapes as a Classroom Aid in Teaching Child Development" The purpose of this project is to prepare several 10 to 15 minute video tapes to be used as visual supplements in teaching child care and development. Each tape will present one or more related concepts and their practical applications as used in an actual nursery school setting.	$ 500.00
19-1047	The Pennsylvania State University Mr. Robert L. Whitman (Mini-Grant Type A)	"An Administrative-Counselor Plan to Assess the Vocational Development of Rural Disadvantaged 8th and 9th Grade Students in Relation to Vocational-Technical Education"	$ 1,000.00

Project No.	Agency/Person	Title/Abstract	Amount
19-1047 (continued)		A study of the process of vocational development among rural disadvantaged 8th and 9th grade students. The attitudinal dimension of vocational maturity will be studied in detail.	
19-1048	Shippensburg State College Dr. Max G. Cooley	"Extension of Project No. 40001 to Review Shorthand Attrition Problem" Project will complete analysis of data and reporting of project to examine characteristics of students likely to complete the shorthand course sequence.	$ 4,075.00
19-1049	Fayette County AVTS Mr. Owen F. Fields (Mini-Grant Type A)	"A Comparison of Students' Reading Abilities, the Readability of Textbooks and Students' Attitudes Toward Textbooks in Seven Areas of Vocational Education in a Western Pennsylvania Area Vocational-Technical School" The study will examine compatibility of reading ability and textbooks used in automobile mechanics, business education, cosmetology, data processing, distributive education, machine shop and welding.	$ 430.00
19-1050	American Management Center Mr. Noor Khan	"An Assessment of the Impact of Research and Related Projects on Educational Practices in Pennsylvania" This research study will address itself to the following questions:	$33,300.00

Project No.	Agency/Person	Title/Abstract	Amount
19-1050 (continued)		1. Did research and related projects funded through the RCU influence vocational educational practices in Pennsylvania? 2. Which research and development activities have had the greatest impact? 3. What variables influenced the success of various projects?	
19-1051	Lancaster County AVTS Mr. J. Richard Murr	"A Developmental Teacher Workshop on Career Education on a K-12 Basis in Lancaster County" The purpose of this project is to plan and implement a cooperative workshop for selected school personnel in career education.	$12,400.00
19-1052	Riverside School District Mr. Ralph D'Amico (Mini-Grant Type A)	"A Survey to Determine Job Opportunities and Requirements for Beginning Keypunch Operators" Selected business offices will be contacted to determine employment requirements and practices.	$ 460.00
19-1053	Delaware County AVTS Mr. Robert J. Riehs	"Curriculum Development and Revision in the Area of Remedial Mathematics for Vocational Students" The goal is to significantly raise the math competency level of vocational-technical students. The project will include the development of diagnostic	$ 3,564.00

Project No.	Agency/Person	Title/Abstract	Amount
19-1053 (continued)		testing materials and the construction of audio tapes and coordinated worksheets aimed at eliminating deficiencies.	
19-1054	Temple University Miss Somporn Bharksuwan (Mini-Grant Type A)	"A Study of the Commonalities in Vocational Education Courses in State Supported Universities in Pennsylvania"	$ 1,000.00
19-1055	Scotland School for Veterans' Children Mr. John Kanuk	"Relationship Between AVTS Schedule Models and Student Achievement" The purpose of this project is to compare aspects of student achievement among several AVTS schedule models.	$ 550.00
19-1056	West Chester State College Dr. Ernest L. Peters	"Workshop in Proposal Writing" The purpose of this workshop was to provide vocational educators with information about sources of funding and provide them with training in proposal writing.	$ 4,882.90
19-1057	The Pennsylvania State University Mrs. Suzanne P. Loss (Mini-Grant Type A)	"Analysis of Physical Nonverbal Components of Classroom Interaction"	$ 1,000.00

Project No.	Agency/Person	Title/Abstract	Amount
19-1058	School District of Philadelphia Mr. William Bell	"Installation and Testing of a Vocational Evaluation System" The program will install a Singer/ Graflex Vocational Evaluation System and attempt to evaluate its effectiveness with students.	$10,290.00
19-1060	The Pennsylvania State University Dr. Thomas F. Powers	"Development of a Validated Instructional System for Hospitality Education" This project is a supplemental grant to project 19-1016 which is designed to develop a prototype instructional system in hospitality education for postsecondary students.	$ 5,715.00
19-1061	Delaware County Intermediate Unit Mr. Merrill Hughes	"A Research and Developmental Workshop for Vocational Teachers in Writing Behavioral Objectives" The teachers of the AVTS expressed unit and task objectives of their curriculum in behavioral terms.	$ 8,081.56
19-2005	The Pennsylvania State University Dr. Samuel M. Curtis	"Education in Agriculture for the Educationally Disadvantaged" This project will field test educational materials for educationally disadvantaged students in vocational agriculture classes. The materials were developed during the previous year of this project.	$30,987.00

Project No.	Agency/Person	Title/Abstract	Amount
19-2006	The Pennsylvania State University Dr. Edwin L. Herr	"A Research Investigation Designed to Create a Career Development Education Model for Grades K-12" This project proposes to develop a syllabus that outlines a career development education model for grades K-12.	$47,138.00
19-2007	The Pennsylvania State University Dr. Joseph Impellitteri	"A Longitudinal Study of Vocational Development and Program Evaluation: Implications for Curriculum Planning and Vocational Guidance: Phase II" This project will relate student measures to 9th grade achievement and also examine the effectiveness of the vocational program in bringing about desired changes in students over a three-year span. This is a continuation of Project No. 19-1013.	$53,276.00
19-2008	Harrisburg School District Mr. Horace Cameron	"Cooperative Distributive Education for Disadvantaged Youth" This project locates unemployed youth who have dropped out of high school and provides a supervised work experience program including those academic skills needed on the job. All facilities are located at a local shopping center.	$61,992.00

Project No.	Agency/Person	Title/Abstract	Amount
19-2009	Gannon College Dr. William H. Culp	"Project GIVE: Guidance in Vocational Education--Elementary" The purpose of this project was to provide elementary teachers and guidance counselors with industrial and vocational experiences to better prepare them to deal with the career development of their students.	$30,000.00
19-2010	Midwestern Intermediate Unit IV Dr. Angelo Pezzuolo	"Comparative Follow-Up Study of Former Mentally Retarded Students in Intermediate Unit IV Area" This project will try to determine what educational programs have been most successful for training EMR students and to try to use this information to plan better programs in the future.	$14,136.00
19-2012	Bucks County Intermediate Unit Dr. James Ross	"Supervised Independent Study Program" This is the second year of an exploratory program in Bucks County to provide supervised independent study for the school dropout, the unemployed and the underemployed, the socially and culturally disadvantaged and for persons with special needs not currently being met in the formal education program.	$47,773.00

Project No.	Agency/Person	Title/Abstract	Amount
19-2013	Mercer County AVTS Mr. Robert G. Brown	"Agricultural Environmental Technology" The objective of this program is to develop curricula that can be used to train secondary vocational students in careers relating to environmental technology in agriculture.	$16,407.81
30918	Pittsburgh Public School District Mr. John Pardini	"Project Set" (Select Employment Trainee) Phase I, developmental portion of a three-phase research and demonstration program, designs an educational program in cooperation with the industrial/business community for students who are identified as potential "dropouts" from regular or "mainstream" education programs.	$19,980.00
30934	Millersville State College Mr. Joseph Flake	"Pennsylvania Vocational-Technical Education Information Dissemination System" The objectives of this project are: 1. To operate an effective state vocational-technical education information dissemination system 2. To determine the effectiveness of the system by conducting user analysis studies 3. To fulfill the objectives of the RCU by disseminating vocational information	$67,686.00

Project No.	Agency/Person	Title/Abstract	Amount
30934 (continued)		4. To work cooperatively with VT-ERIC and other states in dissemination projects.	
30935	The Pennsylvania State University Dr. Samuel Curtis	"Milk Marketing Instructional Unit Development and Dissemination" A project to develop and disseminate via in-service education a teacher's manual and student handbook on Milk Marketing to be used in high school and adult agriculture classes.	$ 8,100.00
30937	Penn Hills Township School Dr. Arthur Kelley	"Revision of the Previously Implemented Curriculum Designed for Teaching the Service Occupations in the Penn Hills School District Vocational Department" The purpose of the project was to complete the revision and updating of curriculum materials developed for the disadvantaged youth in the Penn Hills School District. The materials being revised resulted from previously funded BVTCE projects.	$ 7,436.00
40001	Pennsylvania Business Education Association Dr. Elizabeth Ripka	"Shorthand Attrition Research Proposal--A Study to Identify the Characteristics of Students Who May Be Unsuccessful in the Study of Shorthand"	$30,615.00

Project No.	Agency/Person	Title/Abstract	Amount
40001 (continued)		A project to determine what factors can be identified as predictors of success or failure in shorthand.	
40004	West Chester State College Dr. Ernest Peters	"Orientation to Research: An Institute for Vocational Education Teachers" The purpose of this special study institute is to provide 20 vocational education teachers with a minimum background in research methods, statistics and proposal development.	$ 6,640.00

Project No.	Agency/Person	Title/Abstract	Amount
20-1001	Springfield School District Mr. Kenneth K. Wallick		$27,125.00
20-1003	Greater Johnstown Area Vocational-Technical School Mr. Robert Kifer	"Model Career Resource Centers in Schools for the Systematic Purposeful Use of Career Information"	$19,090.00
20-1004	North Hills Area School District Mr. James Higgins	The project will establish model Career Resource Centers in local school settings for the dissemination of current, accurate and relevant career resources in a systematic and purposeful manner.	$20,624.00
20-1005	York County Area Vocational-Technical School Mr. Theodore Sheckart		$18,415.00
20-1006	State College Area School District Dr. Richard Warner		$19,150.00

Project No.	Agency/Person	Title/Abstract	Amount
20-1002	Hazleton Area School District Mrs. Nancy Gilgannon	"Innovative Utilization of Television for Dissemination of Occupational Information Through Regional Industrial Participation" The purpose of the project is to establish an occupational tape library of occupations normally taught in area vocational-technical schools. The tapes would aim primarily at an elementary and junior high school population.	$23,901.00
20-1008	University of Pittsburgh Dr. Charles W. Steadman Dr. Irvin H. Iwler	"Develop Instructional Materials for Distributive Education Project Method of Instruction" The distributive education department of the University of Pittsburgh will develop a project method of instruction curriculum with related materials for teaching distributive education in those school districts which are too small to offer a DE cooperative program.	$20,011.00
20-1009	Capital Area Intermediate Unit #15 Dr. M. D. Rudisill	"A State Agency for the Preparation of Career Information for Use by Students in Local Schools" The project will establish a centrally located system of production of career information pertinent to students from a wide range of abilities and interests which, in turn, will be distributed for use in school districts throughout the Commonwealth.	$77,674.00

Exemplary Projects (1972-1973)

Project No.	Agency/Person	Title/Abstract	Amount
20-2001	Springfield School District Mr. Kenneth K. Wallick		$16,275.00
20-2002	North Hills School District Mr. James C. Higgins	"Model Career Resource Centers in Schools for the Systematic Purposeful Use of Career Information"	$17,300.00
20-2003	State College Area School District Dr. Richard W. Warner	The project will continue to support the activities of the career resource centers to disseminate current, accurate and relevant career resources in a systematic and purposeful manner.	$ 6,842.00
20-2004	Greater Johnstown AVTS Mr. Robert H. Kifer		$13,372.00
20-2005	York County AVTS Mr. Henry F. Pilker		$ 9,297.08
20-2006	Central Columbia School District Mr. Carl N. Everett	"Development of Modular Courses in Vocational Curriculum"	$16,950.00

Project No.	Agency/Person	Title/Abstract	Amount
20-2006 (continued)		This project is the second year of reorganization of the vocational and academic programs in a semester type organization. Variables studied include club activities of students and vocational courses elected.	
20-2007	Capital Area Intermediate Unit #15 Dr. M. D. Rudisill	"PENNscripts Career Briefs for Student Use in the Schools of Pennsylvania" This project will continue the improvement of the career information resources available to students through the preparation and dissemination of current, relevant and accessible career scripts and related materials.	$96,229.00

A salad served as an accompaniment offers a contrast to the rest of the meal. The size of the portion is moderate. It may be served with the main course or as a separate course. Examples are tossed salads, peach and cottage cheese, and pickled beet salads.

The main dish salad is exactly what it describes--a salad which is the whole meal. This salad combines a variety of products such as meat, fish, poultry, cheese, fruit, vegetables, dairy products, macaroni, or gelatin products. It should contain as many of the Basic Four Food Groups as possible without losing simplicity, flavor, and eye appeal. Examples are Chef's Salad tomato stuffed with tuna salad, and fruit salad plate with cottage cheese.

Dessert salads are frequently on the sweet side. They combine fruits, nuts, dairy products, and gelatins. They may be chilled, molded, or frozen.

Parts of a Salad

There are four basic parts that make up the majority of salads. They are the base, the body, the dressing, and the garnish.

The base consists of some type of salad green that is put on the plate under the salad body. It keeps the salad and plate from looking bare, adds to eye appeal, and provides contrast to the salad body.

Salad bodies are the combination of ingredients which give the salad its name. The body may be served in any one of a limitless number of ways.

Salad dressings may be served on the salad or they may be served separately. They add flavor, palatability, and nutritional value to the salad.

Garnishes are the finishing touch to a salad. They add to eye appeal and color of the salad. They should be simple enough not to take away from the salad, yet attractive enough to attract attention. The texture and flavor of the garnish should be related to the salad.

Salad Ingredients

There is an endless variety of salad ingredients. Probably the most widely used ingredients are salad greens. These include many types of lettuce, escarole, romaine, chicory, endive, Chinese cabbage, and watercress. Others include raw spinach, celery, parsley, onions, radishes, cucumbers, tomatoes, and many too numerous to mention. These ingredients are served uncooked.

Since greens are used so extensively in salads, their preparation and storage is of much importance. Greens should be washed several times in large quantities of cold water. This removes dirt or and that is on or between the leaves. When possible, whole heads are washed to limit handling of the inner leaves. It may be necessary to remove the core either with a knife or by twisting. Water is run through the leaves or the head is soaked for a short period of time in the water. Greens should be picked out of the water instead of dumping the water from the greens. This is done because the dirt particles settle to the bottom of the container. The greens should be drained as much as possible, covered with a damp cloth and refrigerated until they are needed for preparation. Greens should be crisp but not wet when served. Salad dressings will not coat wet greens.

When time allows, green salads should be prepared as close to serving time as possible. Salads may be mass produced like sandwiches. Dressings and tomatoes should be added directly prior to service. If they are put on too soon, the result is a soggy salad. When making chilled salads, plates should be refrigerated in advance. Salads ready for service should also be refrigerated.

Fruits in Salads

An endless variety of fruits may be used in salads. Like greens and other vegetables, they are very fragile and should be handled as little as possible. Ripened fruits should be refrigerated. This includes bananas since refrigeration does not harm the fruit but merely discolors the peel. Unripe fruits may be

stored at room temperatures until they ripen. They should then be refrigerated.

Canned fruits of high quality may be used in place of fresh fruits in salads. They should be stored in a cool, dry place before opening and must be refrigerated after the can has been opened.

Some fresh fruits such as apples and bananas turn brownish once they have been cut and exposed to air. This is due to the presence of a certain enzyme. This darkening may be prevented by soaking the cut pieces in a liquid of acid content such as orange juice so that the enzyme is destroyed. Special chemical anti-oxidants may also be used. Cooking such fruits and white vegetables also destroys the enzyme that causes browning.

When preparing fruits for use in salads they should be cut in pieces that are small enough for one bite. This prevents the necessity of additional cutting when the salad is being eaten. This same principle holds true for mostly all salads.

The best knives for slicing and preparing fruits are stainless steel ones. They do not stain or discolor the fruits.

Gelatins

The gelatin salad provides a unique way to combine interesting flavors and texture in a food item. Flavored gelatin can be served by itself or it can be combined with raw or cooked foods in many different ways.

To prepare flavored gelatin, add the amount of boiling water designated on the package. Stir until all gelatin granules have dissolved. Add the remaining cold liquid or, to chill the gelatin more quickly, add ice cubes in place of the normal amount of cold water. The gelatin should be refrigerated so that it sets up. Because of the time factor involved in producing a stable gelatin, it is recommended that gelatins be made the day before they are to be served. If they are stored much longer, a tougher, more rubbery product results.

Unflavored gelatin is prepared in much the same way as flavored gelatin except that the gelatin granules must be soaked in cold water first before boiling water is added. This moistens the larger unflavored particles and produces a more tender gelatin. In preparing both types of gelatins, care should be taken to mix the amount of gelatin accurately in the stated amount of liquid. Too much liquid produces a weak gelatin. Too little liquid produces a tough product.

When making a gelatin salad that suspends fruit in the gelatin, the fruit should be added (well-drained) when the gelatin has cooled enough to become syrupy. If the fruit is added too soon it may sink to the bottom or may stay at the top instead of being evenly distributed throughout the gelatin. If the gelatin is too thick when the fruit is added, it will not set up around the fruit.

When gelatin is used in molds, there is a special way to unmold it so as to keep the gelatin intact. The mold should be dipped up to the edge in warm water for just a few seconds. This loosens the gelatin in the mold. Leaving it in the water too long will melt too much of the gelatin and will produce a low quality product. The mold is then inverted on the plate and shaken or tapped until the gelatin loosens itself from the mold.

Salad Dressings

Salad dressings, like sauces, have a few basic types that can be altered by adding one or more ingredients. This changes the name and flavor of the dressing. The basic types of salad dressings are French, cooked, and mayonnaise.

The basic French dressing is a combination of oil, vinegar, and seasonings. It is what is referred to as a "temporary emulsion." This means that the oil and vinegar separate very quickly even if shaken vigorously or beaten. Most variations of the basic French dressing use other ingredients to keep the oil and vinegar from separating. When the oil and vinegar stay mixed, the full flavor of the dressing is achieved.

Emulisfying agents act like magnets between water-based substances and fats or oils. The agent coats the fat molecules and attracts water molecules. They tend to stay together (in an "emulsion") yet this is achieved by keeping fat and water separated.

Cooked salad dressings usually combine less oil than is used in French dressing with starch and egg yolk and additional liquids and/or whipping cream to flavor the dressing. Care must be taken not to overcook the dressing or to cook it too quickly at too high a heat. It is very important to follow the recipe when preparing this type of dressing.

Mayonnaise contains oil, vinegar, water, and usually egg yolks. It may also combine a variety of other ingredients. It is important that these ingredients are added in proper proportions so that the mayonnaise is smooth and creamy. This results in a permanent emulsion. The mayonnaise is prepared by whipping egg yolks, adding the dry ingredients, and adding about half the vinegar. The oil is then added in small amounts while beating continues. The remaining vinegar is added after all the oil has been used. The beating is continued for another five minutes at medium speed. If the mayonnaise is overbeaten, the emulsifying agent is stretched too far and the mayonnaise separates (a broken emulsion). This is a critical point that must be avoided.

Choice of an appropriate salad dressing for any particular salad is very important. The dressing should not cover up the flavor of the salad but should enhance it. A dressing should harmonize and blend with the salad ingredients.

The dressing should be placed on the salad as close to serving time as possible. If the dressing is put on too soon, the salad becomes soggy and loses its fresh, crisp flavor. This is true primarily for green salads. In those such as potato salad and macaroni salad that require that mayonnaise be added to combine the ingredients, the above rule does not hold true. The mayonnaise should be added about one hour in advance of serving in order to allow a blend of flavors.

WORKBOOK EXERCISES

Lesson 4

1. Name the four types of salads that may be served.

2. List the four parts of a salad.

3. Why are salad greens not soaked for long periods of time in the cleaning process?

4. Name the three basic types of salad dressing.

5. How is French dressing made more stable?

6. What thickening agents are usually used in a cooked dressing?

7. What type of a knife should be used when cutting fresh fruits such as apples or bananas?

8. A salad person discovers at 9:00 that there is a molded gelatin salad on the menu for that day's evening meal. If service begins at 4:00, do you think the gelatin will be ready? Why?

KEY TO WORKBOOK EXERCISES

Lesson 4

1. Appetizer, accompaniment, main course, and desserts.
2. Base, body, dressing, garnish
3. Soaking wilts them and also decreases nutritional value
4. French, cooked, mayonnaise
5. By adding various emulsifiers or chemicals that act as emulsifiers
6. Eggs (or egg yolks) or starch
7. Stainless steel
8. It should be if it is properly prepared and placed in small, individual molds. Chilling with ice instead of cold water would definitely ensure its being ready on time.

HFS SPECIFICS

THE SALAD STATION

The menu of the HFS requires the production of many and different salads for the afternoon and evening meals. Salads are served as appetizers, accompaniments, main courses, and desserts. Because in a typical day, the HFS may need up to twelve different salads, two fu-l time workers are employed on the salad station.

The jobs of the salad station employees include cleaning, handling, and storing salad ingredients, performing a variety of cutting activities, making garnishes, and preparing many ingredients other than salad greens for use in salads. They may prepare gelatin, macaroni, and a variety of meats and fruits for use in salads. The salad station workers check worksheets closely and may use high quality leftovers as salad ingredients. They also break down and store foods from leftover salads to limit waste in the HFS.

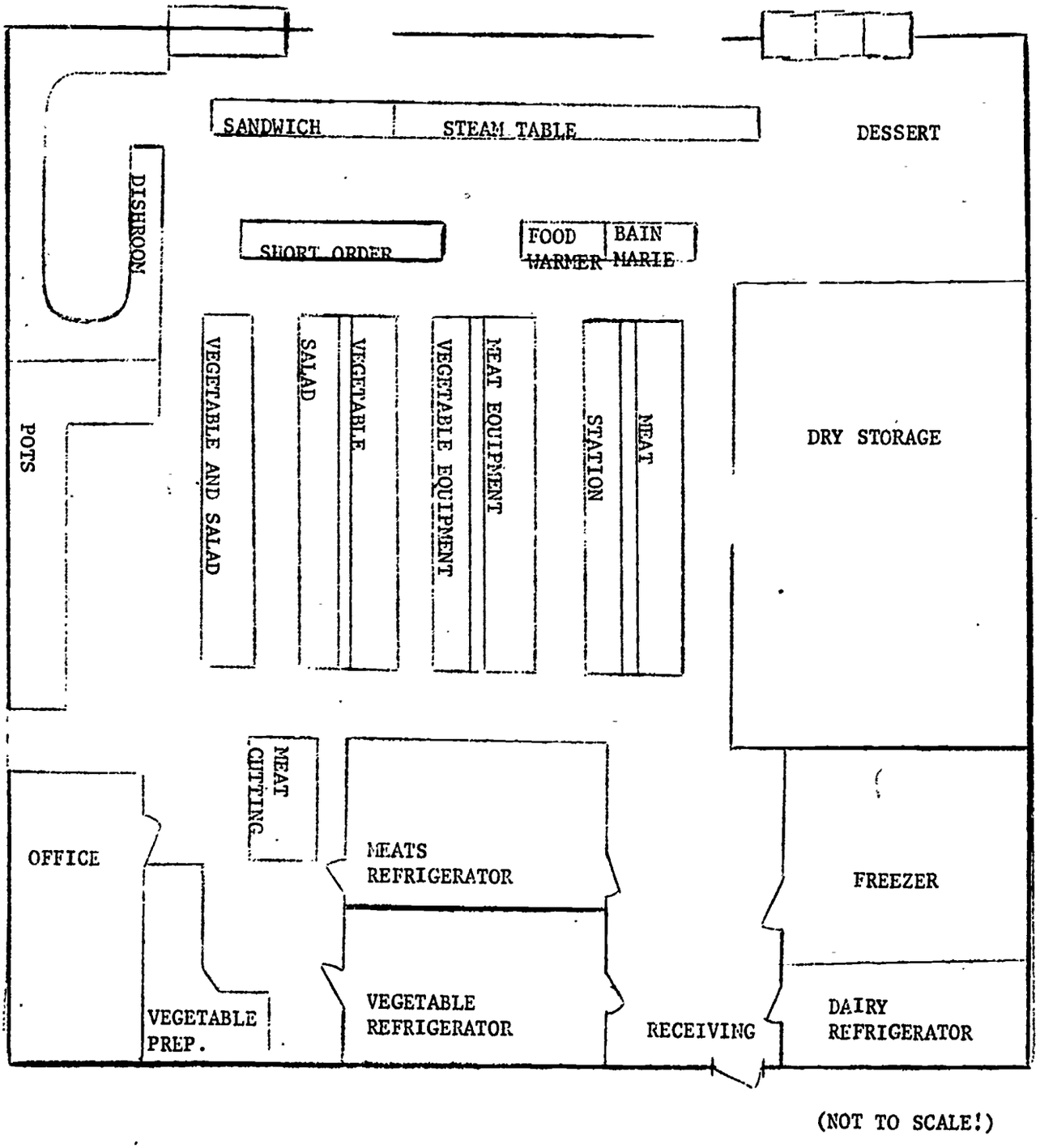
Most of the ingredients for salads are stored in the vegetable refrigerator. If the vegetable preparation area is not in use, the salad station workers may use it to clean greens and other salad ingredients before making the salads. The salad items are assembled on a movable cart and transferred to the salad station where they are prepared for serving. Prepared salads are portioned and placed on plates or in bowls that have been chilled and are placed in a refrigerator until they are needed for serving.

Because the salad station workers have much direct contact with salad ingredients in preparing and arranging the salads, proper sanitation habits are a necessity. The station area must be kept clean at all times. The workers wear plastic gloves when it is necessary. Proper safety habits are also used by the workers since their work requires frequent use of knives and machinery to slice and chop food items. Because the nature of the work in the salad station is similar to that of the vegetable station, much of the same equipment is used by the workers

of both stations (see Figure 4). The placement of this equipment is such that it is convenient for workers from both areas to use it. It would be unwise to have duplicate pieces of equipment since neither station uses the machinery constantly. However, because of the more frequent use of the equipment, it is necessary that it be cleaned as soon as possible after each use.

Like the product flow in the vegetable station, the prepared salad items move from the refrigerator to either the pre-preparation area or the main preparation area at the salad station. Prepared salads are refrigerated and moved to the pass-through salad refrigerator beyond the steam table during the serving period. (One exception to the cold salads served in the HFS is the restaurant's hot potato salad. It requires combining diced potatoes and other ingredients and baking them in the oven. This salad is kept hot in the food warmer for serving.)

Attractive salads are one of the HFS's strong points. The salad station workers are very conscious of the characteristics of good salads (page 1 in Salad section) and follow the rules for preparing them. They are responsible for following recipes accurately and for seasoning salads to taste. Salads in the HFS remain a very popular menu selection because their quality is consistently high and the way they are presented is so appealing to the customer.



(NOT TO SCALE!)

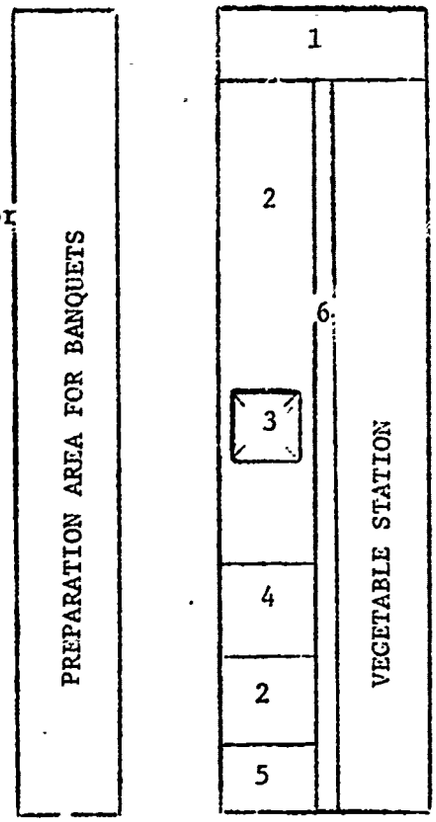
FIGURE 1.2: HFS KITCHEN

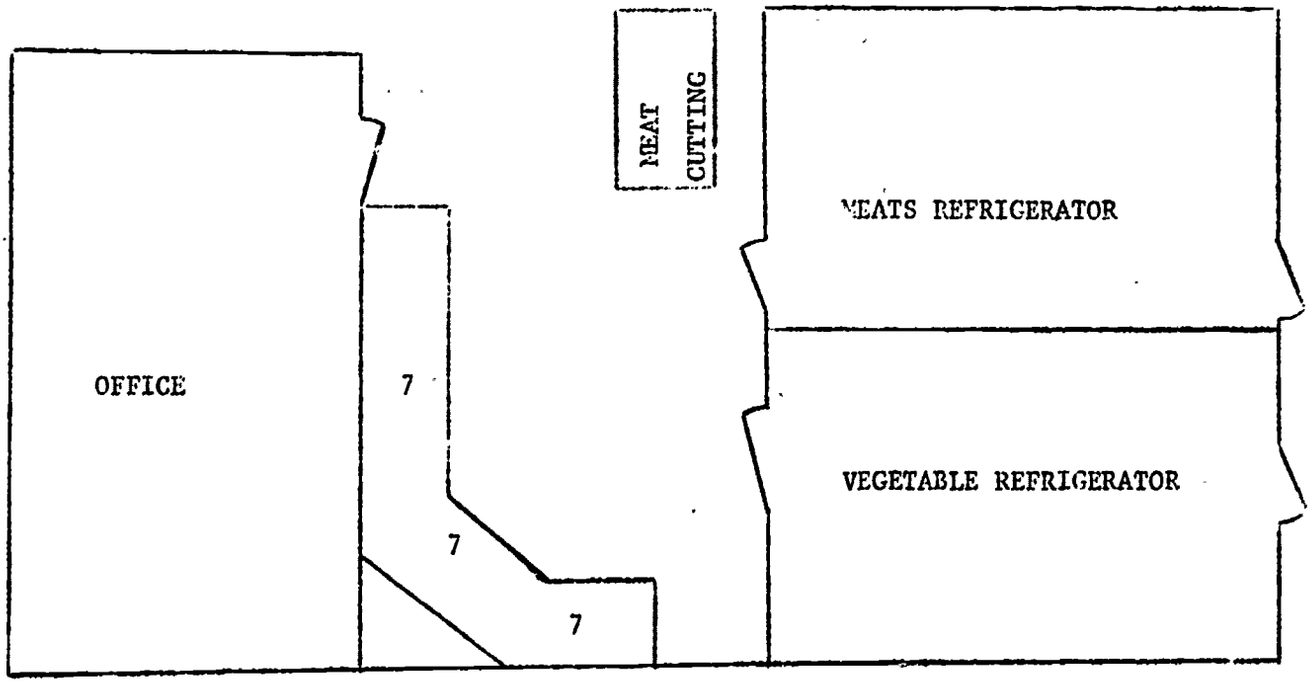
5/30/72 MER 2254: SW

Figure 4 : SALAD STATION

KEY

1. Veg. and Salad refrigerator
2. Salad work tables (2)
3. Sink
4. Built-in cutting board
5. Table model mixer
6. Raised shelf for recipes
7. Vegetable Prep. area is also used by the salad worker. See Figure 3 for specifics.





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HFS EXERCISES

1. List two different salads that are made in your work place for each of the four categories of salads.

Appetizer	Accompaniment	Main Dish	Dessert
1.	1.	1.	1.
2.	2.	2.	2.

2. Name at least five seasonings that are used in salad preparation in your work place.

3. List the greens that your establishment uses in salad preparation.

4. List all salad dressings your establishment uses and define them according to their base (French, cooked, or mayonnaise).

5. Draw a rough layout of your establishment's salad area (like Figure 4).

SKILLS

Salad Preparation

14. Core an apple using both methods
15. Remove core from head lettuce by:
    1. cutting
    2. twisting
16. Prepare fresh fruit salad from scratch
17. Clean salad greens
18. Store salad greens
19. Prepare a tossed green salad
20. Make salad bases
21. Prepare and unmold gelatin salads

RELATED SKILLS: #'s 9, (peeling fruits), 10, 29, 40, 53, 58, 73.

ABOUT LESSON 5

Lesson 5 provides a basic framework for cooking cereals, starches, and pasta products. The emphasis of this lesson is your being able to prepare and recognize high quality food items. After you complete this lesson, you should be able to identify certain menu items as being in one of these categories and, beside being able to prepare these items, you should know all possible methods of cooking them.

STUDENT DIRECTIONS

1. Read pages 1-6.
2. Complete the Workbook Exercises on pages 7 and 8.
3. Check your answers with the Workbook Key on page 9.
4. If you have answered questions incorrectly, re-read the appropriate material and re-answer the questions you missed before going on to #5.
5. Read the HFS SPECIFICS on page 10.
6. Answer the HFS questions on page 11.
7. On page 12 you will find a list of SKILLS that are related to this lesson. Follow the procedure for checking off SKILLS.
8. You have now completed Lesson 5. If you still feel you do not understand any part of this lesson, consult with a classmate, a fellow worker, the establishment supervisor, or the University instructor about your questions. You will be given a quiz on the material presented in Lesson 5 during the next class seminar.

6/1/72 MER 2259: SW

CEREALS, STARCHES, AND PASTA

An understanding of the proper use of cereals and starches is extremely important because they are used in some form or another in practically every meal. We usually think of using starches in the preparation of thickening for desserts, soups, sauces, and gravies. But we fail to realize that the principles of starch cookery apply to cooking cereals, rice, potatoes, macaroni, spaghetti and other starch products.

Starch and Starch Cookery

Starch is a storage form of carbohydrates deposited as granules in the cells of plants. Seeds and roots of plants and various tuber type vegetables (like potatoes)contain starch. The size of the starch granules differ according to their various sources, but all are microscopic.

Starch cookery is little understood and to determine when starch is completely cooked is a matter of guess work since precise methods, temperatures, and time periods for cooking are lacking. There appears to be no definite temperature of thickening but rather a gradual change occurring over a range of 35 to 50 degrees. It starts around 149° F. and continues until about 203° F. at which temperature maximum thickening will take place. A starch paste is sufficiently cooked when it becomes translucent and the starchy taste has disappeared. This may range from 3 minutes (gravy) to about 15 minutes (pasta products). The type of starch or thickening agent determines the length of cooking time.

The following factors determine the thickness of a starch mixture:

1. The kind of starch used.
2. The final temperature to which the starch is heated.
3. The time and temperature of standing after heating.
4. The quantity of sugar present in the mixture.
5. The presence of acid in the mixture.
6. The ratio of water to starch.
7. The presence of alcohol in the mixture.

The Kind of Starch

The same amount of different starches will not result in starch mixtures (or gels) of equal firmness. Cornstarch will produce a thicker gel than the same amount of potato starch. In general, cereal starches produce a firmer gel than root starches when both are used in the same proportions. There are also differences among the starches in each of these groups (cereal and root).

The Final Temperature to which the Starch is Heated

The greatest thickening of a starch mixture is not obtained until the mixture is heated well above the temperature of initial swelling of the granules. A starch paste of wheat starch will not form a firm gel unless it is heated to at least 195° F. A firmer gel is formed if the final temperature is 203° F. Therefore, since temperatures below this do not completely cook starch, water in the lower part of the double boiler should boil so that maximum temperature can be reached in the top compartment. (A steam trunnion kettle may be used in place of a double boiler.)

Time and Temperature of Standing after Heating

As a cooked starch paste cools, it becomes thicker in consistency. Thus, a sauce that pours well when hot may form a gel upon cooling; one that is cooked, cooled in the refrigerator, and is thick before it is reheated may become too thin to use after reheating. (This depends upon the type of starch used.)

Quantity of Sugar Present in the Mixture

The addition of sugar to a starch paste will tenderize the starch gel. As the quantity of sugar increases, the translucency as well as the tenderness of the gel increases until, beyond a certain point, a gel will no longer form. Therefore, in any recipes which requires a large amount of sugar (for example, lemon pie or cherry pie filling), it is best to add the sugar after some thickening has taken place. However, a small portion of the sugar may be combined and cooked with the starch without bad effects.

The Presence of Acids in the Mixture

Acids such as lemon juice, when added to a starch paste before cooking reduce the thickening power of the starch. To prevent any ill effect, fruit juices should be added after some thickening has taken place. This also produces a more natural fruit flavor since the heat does not effect the juice as it would if cooked.

The Ratio of Water to Starch

It is important in starch cookery to add the correct amount of starch to water to obtain the desired thickness. Too much water results in a weaker gel. Too little water produces a situation where there is not adequate water to be absorbed by the starch granules. This will result in a lumpy, glue-like product.

The Presence of Alcohol

Some recipes may call for the addition of a flavoring which contains alcohol to the starch mixture. Since alcohol will evaporate at high temperatures like those of starch cookery, such flavorings should be added only after the mixture has been cooked. This will increase the flavor of the gel to the greatest degree.

Combining Procedures

When boiling water is added to dry starch, the mixture formed is lumpy. When these lumps are broken open, dry starch may be found in the interior. This is caused since the granules reached first by the water swell too quickly and the water cannot penetrate the swollen granules. In order to obtain a smooth paste, when starches are combined with hot liquid, the granules of starch must be separated in some way to be given an equal chance to absorb water. The separation of these granules may be accomplished by mixing with an equal amount of cold water or by blending with other dry ingredients such as sugar. (The sugar draws water between the granules of starch and prevents lumping.) In any method of combining starches and hot liquid, the possibility of lumping will be

lessened greatly if a smooth paste is first made of the dry ingredients and cold liquid. It is also very important that the paste and hot liquid mixture be stirred constantly to get an even distribution of granules. Once the mixture has thickened, the cooking utensil is covered and the mixture is stirred about every 15 minutes or until the raw starch taste is eliminated.

Cereals and Cereal Cookery

Cereals are seeds of certain grasses consisting mostly of starch. They are used not only as breakfast items but in making breads, cookies, cakes, toppings for casseroles, and in numerous other ways.

Cereals for breakfast are avilable today in ready-to-serve form and in ready-to-cook form. These differ mainly in the amount of processing that has been done to the grain. Chief sources of grain for breakfast cereals are wheat, corn, rye, oats, buckwheat and others.

Ready-to-eat cerals may have substances such as sugar, dried fruit, molasses, or honey added to them. They may be in the form of flakes or they may be "puffed."

Ready-to-cook cereals fall into three groups:

1. Small granules, such as farina or corn meal.
2. Flaked grains, such as rolled oats and flaked wheat.
3. Whole grains, such as rice and hominy.

Cereals, like starches, should be combined with liquid in such a way so as to avoid lumps from forming. For fine granular cereals, they should be combined like starch. That is, enough cold liquid should be added to the dry cereal to form a smooth paste. The remainder of the liquid should be brought to a boil and the paste added with careful stirring. This mixture should be brought to a boil over a direct fire, cooked for about two minutes, and placed over boiling water (a double boiler) to continue cooking. The cooking utensil should be covered to prevent the formation of a skin on the top of the cereal.

Approximately six units of water to one unit of cereal is required. If the consistency is still too thin after cooking has been completed, further cooking may be necessary for the purpose of evaporating excess water.

To reheat cold, cooked cereals, use a double boiler. Do not stir until the cereal is well heated. If it is too thick, add a little hot water.

Flaked grain cereals such as rolled oats or flaked wheat should be sprinkled gently into boiling water that h' been salted. Slight stirring may be required only if the water ceases to boil. The cereal may be cooked at a gentle boil, over direct heat, for about two minutes and then allowed to continue cooking in a double boiler (or, the whole cooking process may be done in a steam kettle). Unnecessary stirring or excessive boiling will produce a sticky, gummy mass. The amount of water varies according to the product being cooked because some cereal grains may require more liquid than others. If cereals are cooked for the entire time at boiling temperature, evaporation of the liquid is much greater than if the cereals are cooked in a covered double boiler or steam kettle.

Whole grain cereals such as rice or hominy may be gradually added to boiling water and gently boiled until tender. The thing to remember when cooking whole grain products is to cook the grains tender and swell them to capacity without breaking them and overcooking them. There are three main varieties of rice: long grain, medium grain, and short grain. The amount of processing given to each determines how much cooking will be necessary to yield a finished product. Because of the differences in cooking times, different types of rice should not be mixed if a quality product is desired.

Each of the three main varieties of rice may be milled in a number of ways to produce brown rice, unpolished rice, polished rice, converted rice, or coated rice. These processes will not be further explained here.

There are several methods for cooking rice; however, it is very important that we select one that will give us maximum retention of flavor, nutrients, and eye appeal. In order to accomplish this, cooking methods should be used that

regulate the amount and evaporation of water so that none remains to be discarded when the rice is ready to serve. Usually, with converted rice, the ratio is 2 to 2-1/2 volumes of water to one volume of rice. The rice, butter, and salt are added to the proper amount of cold water, stirred occasionally, and water brought to a vigorous boil. The heat is reduced and the rice is allowed to simmer in a tightly covered container for about 15 to 20 minutes or until the water is absorbed. The rice is transferred immediately to a serving pan and is covered until ready to be served. This is referred to as the "boiling-steaming method."

The pilaf method is also referred to as the "fried rice method." The rice is sauteed in a small amount of butter, margarine, or other fat until the grains are well coated. Onion may be finely chopped and sauteed with the rice. Hot or boiling stock or water in the correct proportions is then added. The utensil is covered and the rice is simmered for about 20 minutes or until tender and all the liquid is absorbed. Once the rice is cooked, it should be gently fluffed with a fork and served hot. Depending on the type of rice used, the volume of cooked rice usually increases 3-1/2 to 4 times its original uncooked volume.

Pastas

The term "pasta" refers to all macaroni products. This includes noodles, spaghetti, vermicelli, and other products made from durum wheat flour.

Pasta products are cooked in an excess of boiling water. A good guideline is 3 or 4 quarts of boiling, salted water per pound of spaghetti. This will yeild approximately 3 pounds of the cooked product. The time necessary for cooking will vary according to the shape and size of the pasta product. Noodles generally take less time than spaghetti which takes less time than macaroni. The products are cooked uncovered since a frothy head forms and boils over the range when the container is covered. Initial stirring may be necessary to prevent

the product from sticking to the utensil. The food is gently boiled as the moving water prevents pieces from sticking together. Pastas are cooked until, when bitten, a piece still has a rather chewy texture but is tender enough to be cut easily. Overcooking produces a soft, mushy product. When cooking is completed, the water is drained off and the pasta is rinsed with cold water. This process stops further cooking and removes any excess starch covering from the pasta which would cause the cooked pieces to stick together. It is then ready for service.

Because of the rather bland taste of pasta products, they are usually served with a variety of sauces including tomato, cheese, and meat.

WORKBOOK EXERCISES

Lesson 5

1. What is the temperature range of thickening for starches?

2. What effect does an excess of sugar have on a starch gel?

3. What effect does lemon juice have on a starch gel?

4. How can a weak gel be prevented when adding lemon juice to a starch?

5. Why are eggs added after maximum thickening of a starch gel has taken place?

6. How should cream of wheat or corn meal be combined with the hot liquid?

7. How should rolled oats be cooked?

8. When cooking a starch paste using a double boiler, what temperature should the water be in the lower part of the container?

9. Why do you think rice should be simmered rather than boiled?

10. How do you determine doneness of a pasta product?

KEY TO WORKBOOK EXERCISES

Lesson 5

1. It begins rapidly around 149° F. and continues until maximum thickening takes place at about 203° F.
2. It tenderizes the gel to the point where a gel will not form.
3. It tends to weaken the gel.
4. Add it after the gel has been cooked.
5. The eggs cook at lower temperatures and would be overcooked if mixed with the starch before the gel was formed.
6. Blend first with cold water forming a paste and then adding to boiling, salted water using a double boiler.
7. They should be gently sprinkled over rapidly boiling, salted water and stirred only if boiling stops.
8. It should be vigorously boiling so that maximum temperature may be reached in the top compartment.
9. Rapid boiling tends to break the rice kernels and produce a mushy product.
10. When bitten, the product should still be "chewy" but tender enough to be cut easily.

H̄FS SPECIFICS

CEREALS, STARCHES, AND PASTA

There is not a specific person who prepares starch and pasta products or a specific station in the H̄FS where these activities take place. The reason for this is that starch and pasta products are used in many food items that represent different menu courses. For example, if an entree is a pasta product, it is prepared by the meat cook; if a salad recipe calls for macaroni, the salad station worker must prepare it; the vegetable cooks make rice and potatoes for vegetable courses; the dessert cook prepares custards and puddings; all of these workers must understand and apply the principles of starch and pasta cookery. Likewise, the short order cook or a pantry worker may be called upon to prepare hot cereal. This person must know how to prepare a quality product.

Since there is no true station where starches and pasta products are prepared, you should keep this in mind when the other stations are explained. Become aware of where, for example, the dessert cook would prepare a custard, and so on for each station.

In the H̄FS, pasta products and starches are usually prepared in a trunnion or steam kettle. On occasion, they may be prepared on the range top. Rice may be boiled or cooked in a steamer. How any particular product is prepared will depend largely upon the quantity needed and the available facilities.

NOTE: The preparation of starches and pasta products in the H̄FS will be covered in more detail in th H̄FS SPECIFICS for the meat station since most of these are used for entree items.

HFS EXERCISES

1. List all the pasta items that are used in your establishment as entrees for one week.

2. List as many items as you can that are prepared in your establishment that use cereal or starch.

3. After making the list in question #2, tell which person prepared which item (include pasta items). Also list the method of cooking used for preparing the item and the type of equipment used by the worker.

SKILLS

Cereals, Starches, and Pasta

23. Adjust the heat in a trunnion or steam kettle to SIMMER contents.
24. Prepare a hot cereal.
25. Prepare an item that uses starch as a thickener.
26. Prepare one pasta product.

RELATED SKILLS: #'s 3, 11, 27, 28, 30, 31.

ABOUT LESSON 6

The material presented in Lesson 6 deals with the preparation of various soups, sauces, and gravies. After you complete this lesson, you should be able to identify specific soups, sauces, and gravies according to their ingredients; you should also be able to successfully prepare any product in these three categories that is requested. Throughout the lesson you will find basic rules concerning the preparation of some products-- memorize these rules since their proper use will yield a successful product.

STUDENT DIRECTIONS

1. Read the section on SOUPS (pages 1-3).
2. Complete the Workbook Exercises on page 4.
3. Check your answers with the Workbook Key on page 5.
4. If you have answered questions incorrectly, re-read the appropriate material and re-answer any questions you missed before going on to #5.
5. Read the section on Sauces and Gravies (pages 6-11).
6. Complete the Workbook Exercises on pages 12 and 13.
7. Check your answers with the Workbook Key on page 14.
8. Read the HFS SPECIFICS on page 15.
9. Answer the HFS Questions on page 16.
10. On page 17 you will find a list of SKILLS appropriate for this lesson. Follow the procedure for checking off SKILLS.
11. You have now completed Lesson 6. If you still feel you do not understand any part of this lesson, consult with a classmate, a fellow worker, the establishment supervisor, or the University instructor about your questions. You will be given a quiz on the material presented in Lesson 6 during the next class seminar.

6/6/72 MER 2267:SW

SOUPS, SAUCES, GRAVIES

Soups are liquids which are named or classified according to what they contain or by their thickness. They may be served as an appetizer or as a main course, the latter being less frequent. The following is one possible way of classifying soups:

STOCKS or BROTHS, including boullions and consommés.

CREAM soups, thickened with a thin velouté, bechamel, or white sauce.

CHOWDERS, thick soups or stews (usually containing seafood, potatoes, and milk or cream).

BISQUES, heavy cream soups containing shellfish.

POTAGES, broths containing a large amount of ingredients (examples: gumbo, vegetable, chicken noodle).

PUREES, heavy soups containing small pieces of meat, fish, poultry, or vegetables (similar to a potage).

Appetizer soups should be light, stimulating to the appetite, and served in a small quantity (about six ounces). They need not be as nutritious as a main-dish soup since other foods will follow. The main-dish soup should be hearty and as satisfying as a stew or a casserole. It may be accompanied by a salad or sandwich to complete the meal.

Broths and Stocks

The process of making broth is a fairly simple one. Meat, meat bones, and vegetables are added to a liquid (usually water) and are simmered for a long period of time. The flavors from the ingredients make the liquid tasty. This liquid is known as broth.

A broth made from beef bones and meat is generally a deep brown color since the coloring comes from the marrow inside the beef bones. If beef broth is strained through cheesecloth (a process known as "clarifying"), it is called "boullion." Boullion is clarified beef broth.

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Broths made from veal, chicken, or pork bones and meat are lighter in color than beef broth. When this broth is clarified, it is referred to as a consommé. A consommé is made from either veal, pork, or chicken.

Any soup that is made by clarifying a broth is called a "stock." Since both boullions and consommés are made from broths, they are also "stocks." A stock is therefore defined as a clarified broth. Stocks may vary in concentration, depending upon how much water has been evaporated from the product. All stocks are what are referred to as "basic" soups since they can be modified by adding various seasonings and/or vegetables to produce a variety of soups.

Bisques, Cream soups, and Purees

Bisques, (bisk) purees, and cream soups are all thick soups, but they also have various differences.

Purees are made with small pieces of meat, fish, poultry, or vegetables. Stock may be added for flavor.

The liquid in which the pureed product was cooked is usually used as the liquid in the soup, although water may be added. A puree may be a very heavy, nutritious soup, or a light soup used as an appetizer.

To make a bisque, cream or a bechamel (bā' ché mel) sauce is added to a pureed product. The pureed food in a bisque (by definition) is shellfish or occasionally salmon. Tomato bisque is not a true bisque since it does not contain shellfish.

Bisques and purees, unlike many cream soups, are smooth in consistency. The flavoring foods in cream soups may be in small pieces or may be pureed. The liquid may either be light cream or milk and is thickened with cream, velouté, bechamel, or white sauce. The use of sauces in soups add flavor and develop body.

One must be careful in making cream of tomato soup since the acid in the tomatoes may curdle the milk. This can be avoided by adding a roux to both the tomato mixture and the milk before they are combined. In this way the acid is

surrounded by gelatinized (thickened) starch as is the milk protein. When they are mixed together, the milk is protected from the acid and will not curdle.

Chowders and other Soups

A chowder is a heavy soup that usually contains diced onions, potatoes, bits of salt pork or bacon and seasoning in addition to the main ingredient. The main ingredient may be any one of a number of items from clams to lima beans.

Gumbos are stock soups made heavy by the addition of meats, fish, and/or vegetables. All gumbos have the vegetable okra in them. Such soups are frequently called potages. Many times, soups are so heavy with added ingredients that they may be more similar to a stew.

Generally, we think of soups as being served hot, but there are many varieties that are served cold. Jellied consommés may contain enough gelatin to gel when chilled (it takes 2% gelatin to gel) or gelatin may be added. Another soup, Vichyssoise, a cream of potato soup garnished with chopped chives, is usually served chilled. Borsch, gazpacho, and many fruit soups are served cold.

Of all the types of soups about which we've spoken, the most difficult to prepare and hold are cream soups. Since they are made with a milk or cream liquid, care must be taken to avoid curdling both during preparation and afterward in holding. If cream soups are prepared too far in advance, chances are that the quality will decrease greatly before the soup is served. Cream soups are also a hazard in sanitational terms since undesirable bacteria thrive in these conditions. Soups with a stock and water base do not present these problems in preparation or holding since there is no chance of curdling.

WORKBOOK EXERCISES

Lesson 6

Soups

1. What is the purpose of an appetizer soup?

2. How do a boullion and a consommé differ?

3. How are purees and bisques similar?

4. What is Vichyssoise?

5. What is the percentage of gelatin required in a soup to make it gel when chilled?

6. Why are cream soups more difficult to prepare and hold than other soups?

KEY TO WORKBOOK EXERCISES

Lesson 6

Soups

1. Stimulate the appetite.
2. A boullion is made from browned beef; a consommé is prepared by simmering veal, pork, or poultry. A consommé is also lighter in color than a boullion.
3. A bisque is a puree of shellfish (usually) with a bechamel or cream sauce added to the pureed product.
4. Chilled cream of potato soup garnished with chives.
5. 2%
6. They may curdle if a lot of acid is introduced to them or if they are exposed to high heat for a prolonged period of time.

SAUCES AND GRAVIES

A gravy or a sauce in meat cookery is used to enhance the flavor of the meat. Many times, the gravy or sauce that accompanies a meat product is more appealing to the customer than the item itself. Since gravies are made from meat drippings, there is a more limited variety of them than there is of sauces. Sauces are made from items not directly derived from the meat product but from others unrelated to the meat item.

Gravies, because they are made from meat drippings, have the definite flavor of the meat from which they came. Sauces, on the other hand, are often prepared without using any fat or liquid from the meat, thus not having the meat flavor. A sauce is a blend of flavors, many of them coming from non-meat products.

Some sauces and gravies may be served either thickened or unthickened. Seasonings are probably more important to sauces than to gravies since sauces rely on a blend of flavors to make them effective. It should be kept in mind that sauces and gravies should be used to enhance a product rather than to disguise a poorly prepared item. (Although history suggests this may have been the original intent.)

Sauces and gravies are selected for the foods they accompany. There are various items that are traditionally served together. Examples are: fried fish and tartar sauce, asparagus and Hollandaise sauce, roast beef and au jus gravy, and wild game and Cumberland sauce.

Sauces are sometimes used to add a contrasting flavor to the taste of a product. Some sauces are used to add flavor to an otherwise bland food (turkey and cranberry sauce). They may also be used to enhance the appearance of a food as is the case of a gelatin and mayonnaise sauce (chaud-froid sauce) used to coat a food item. Sauces may be hard or soft and served hot or cold, depending upon the nature of the sauce and the food item it accompanies.

Liquids Used for Sauces and Gravies

Although the liquid most frequently used in making gravy is water, milk, stock, tomato sauce, wine or many other liquids may be used.

Stock is frequently used in making sauces. Formerly, stock was made from meat and bones, but with more and more items that are purchased in the "ready-to-use" form, canned or dried stocks are now available. White stock is made from unbrowned beef, veal, chicken, or fish. Brown stock is made from browned meat and bones. The darkness is due to the marrow in the bones used in cooking.

Thickening Agents

Sauces and gravies are usually thickened with flour, although cornstarch, waxy maize starch, or other starch thickeners may be used. Eggs or other protein foods are sometimes used in place of starch. Flour, eggs, and bread crumbs yield an opaque sauce or gravy. Potato starch, rice starch, cornstarch, waxy maize, and tapioca give a more clear mixture.

Beside differing in clarity, starch thickeners differ in their thickening power. This is why a recipe must be followed exactly (or alterations should be made when using a different thickener than what the recipe calls for). The result of substituting cornstarch for flour in the same amount would be a thicker sauce or gravy.

Lumps are usually produced when starch or flour are added to hot liquid. This is avoided by mixing the starch thickener with the liquid (while the liquid is not too hot) to form a very smooth slurry. The slurry is then slowly added to the hot liquid while it is stirred constantly. Good agitation (stirring) is necessary or lumping will occur.

Another thickening agent is a roux (roo). It is made by blending flour and fat (usually in 50% portions by weight) and then cooking this paste for a few minutes without browning it. The roux differs from the slurry in that the fat dispersing agent makes a more flavorful product.

We have previously stated that a slurry is a cool mixture that is added to hot liquid. A rule used for blending roux into liquids is as follows: blend a cold roux into a hot liquid and a hot roux into cold liquid. This allows the final mixture to be below the thickening temperature of the flour and will result in a smooth product.

If a recipe calls for a "browned roux," it may be better to add pure caramel coloring to achieve the darker color rather than browning the roux. When a roux is browned, the flour breaks down and loses its thickening power. This also produces a bitter flavor.

Sauces

There are many basic sauces or "mother" sauces that can be slightly changed to produce secondary or "small" sauces. Some of the basic sauces are brown, white, velouté, bechamel, tomato, butter, and Hollandaise. Some sauces are made from liquids derived from meats. These are referred to as meat sauces. Other contain no meat liquids and are referred to as neutral sauces.

Brown Sauce

The brown sauce is one of the most common basic meat sauces. A brown stock is used for the brown sauce. Sometimes a browned roux is added to the stock. When a roux is browned, some of the flour's thickening power is lost. This means that additional flour must be added to the roux to obtain the necessary consistency in the sauce. The sauce is then slowly simmered until the taste of raw flour has disappeared. The longer cooking period allows flavors to blend and mellow, thus producing a better sauce. As with all sauces and gravies, the cook should taste and season all products before they are served.

This basic brown sauce may be changed in a variety of ways to produce secondary sauces. The following are some of the more common varieties:

1. Brown sauce + chopped mushrooms = mushroom sauce.
2. Brown sauce + dry red wine, chopped green onions, and beef marrow = Bordelaise sauce.

3. Brown sauce + orange and lemon peel and juice, ginger, port wine, and dry mustard = Cumberland sauce.

4. Brown sauce + chopped tomato and minced cloves or crushed garlic = Provencale sauce.

Velouté

A second basic sauce is the velouté. It is made from a white stock thickened with a white roux. It is cooked with vegetables and seasonings that are strained out before its use. (This should not be confused with a white sauce.) The white stock of the velouté is frequently made from chicken or veal. If it is a fish stock that is made into a velouté it is referred to as a sauce vin blanc (white wine sauce because white wine is used as part of the liquid).

Some variations of a velouté sauce are:

1. Velouté + cream = Supreme sauce.

2. Velouté + egg yolks and cream = Poulette sauce.

The velouté sauce is frequently referred to as a blond sauce. (Is it true blondes have more fun?)

Bechamel

A bechamel sauce is a meat sauce made from white stock with cream added as the liquid. If it is prepared in this manner it can be called a basic sauce. A type of bechamel sauce can be made from a velouté if cream is added to the velouté to thin the sauce. If prepared from a velouté sauce, a bechamel would technically be a secondary sauce.

A basic bechamel sauce can also be called a cream sauce. This sauce can be altered to make the following secondary sauces: Newberg, Mornay, tomato, A la King, and cheese.

White Sauce

A white sauce refers to a starch-thickened sauce where the flour is not browned. It is unlike a meat sauce in that stock is not added. The liquid of a white sauce may be milk or cream. Variations of the basic white sauce are made of practically anything imaginable and are made to various consistencies ranging from thin to very thick.

Hollandaise Sauce

Hollandaise sauce is a basic sauce made by beating melted butter into egg yolks over hot water and adding vinegar or lemon juice after the egg and butter are combined. It is one of the richest sauces since those sauces thickened with egg yolks make the richest of all sauces. These sauces are very difficult to make correctly since they must be heated slowly, cooked but must not be allowed to reach a simmering temperature. If this happens, the egg yolks will harden and will separate from the butter. A good method to use is that of "tempering." A small amount of hot milk is added to the egg mixture and stirred. This raises the temperature of the egg mixture. This tempered mixture is then poured into the remaining hot milk. The gradual heating of the eggs by adding hot milk prevents the eggs from hardening.

Like mayonnaise, a Hollandaise sauce will break if it is overcooked. This occurs because the emulsifier is stretched too far by extreme or extended heating.

Variations of Hollandaise sauce include Bernaise, Mousseline, and Remoulade sauce.

Although mayonnaise is not a variation of Hollandaise sauce, it is a sauce that is thickened with egg yolks and should be mentioned here. It is combined with various ingredients to produce tartar sauce and many salad dressings.

Tomato Sauce

Tomato sauce is made by blending a rich meat stock and tomato puree or tomato paste. It is thickened with a roux, simmered with vegetables and seasonings, strained, and served. Sometimes a neutral tomato sauce is made without meat stock. Another variation is made by cooking the sauce down until it is thick--then the roux is omitted.

Butter Sauce

A butter sauce adds richness to a food product. It is a good carrier of additional seasonings, as well. The butter may be used in a melted form or seasonings may be added to softened butter.

Melted butter blended with lemon juice and cayenne is called maitre d'hotel sauce. A lightly browned butter is a meuniere sauce and a darkly browned one is a beurre noir. (They are all seasoned as is the maitre d'hotel sauce.)

Softened butter may be combined with the following minced items or pastes to form sauces that carry the name of the additional ingredient: anchovys, capers, garlic, mustard, parsley, or green onions.

WORKBOOK EXERCISES

Lesson 6

Sauces and Gravies

1. Why is there a greater variety of sauces that can be made than there are gravies?

2. What is the major difference between a gravy and a sauce?

3. What is meant by "neutral" sauce?

4. Name the two basic types of stock and explain the difference between them.

5. Define slurry.

6. Define roux.

7. A basic sauce is sometimes called a _____ sauce and a secondary sauce may be called a _____ sauce.

8. A velouté is made from a _____ stock.

9. Define bechamel.

10. What is the rule for adding roux to liquid?

11. What effect does browning have on flour?

12. Realizing the principle of #11 above, what adjustment would you make in a sauce that **required** a browned roux?

13. How do the following two sauces differ?

maitre d'hotel

meuniere

14. List the five main warm basic sauces.

a.

b.

c.

d.

e.

KEY TO WORKBOOK EXERCISES

Lesson 6

Sauces and Gravies

1. Gravies are made from meat drippings, but their number is limited.
2. A gravy is made from meat drippings and carries the flavor of the meat; a sauce has no special meat flavor.
3. It has no meat essence in it.
4. White and brown; brown is made from browned meat, white from unbrowned meat or fish.
5. A mixture of flour and liquid.
6. A mixture of flour and fat--usually in 50% ratio by weight.
7. Mother, small
8. white
9. A sauce made from a chicken or veal stock and then thinned with rich milk or cream.
10. hot roux to cold liquid; cold roux to hot liquid.
11. lessens its thickening power
12. Add flour to the roux to increase thickening power.
13. maitre d'hotel is an unbrowned butter sauce, meuniere is a browned butter sauce.
14. a. Brown
    b. Bechamel
    c. Velouté
    d. Tomato
    e. Hollandaise

HFS SPECIFICS : LESSON 6

The preparation of soups, sauces, and gravies in the HFS is generally the responsibility of one of the meat cooks. In special cases, sauces may be prepared by the station worker whose job it is to prepare the product requiring a sauce. Examples are Hollandaise sauce prepared by the vegetable cook for use on asparagus, and fruit sauce foruse on sponge cake that is prepared by the dessert cook.

Until recently, most soups in the HFS were prepared from scratch. Now they may be prepared from canned or dried products. The reasoning behind this is that the process of making soups from scratch is very expensive and very time consuming. The time involved is hardly justified if the same quality can be obtained from some type of convenience item that is easy to prepare.

All sauces and gravies in the HFS are prepared from scratch. The cooks feel that this is necessary since present convenience products are not of as high a quality as items prepared from scratch. In addition, not much additional labor is required to make gravies and sauces from scratch which further justifies this process to achieve a high quality product.

The equipment used by the station workers to prepare soups, sauces, and gravies varies depending mainly upon the quantity needed for service. Most soups and sauces are prepared in a trunnion or steam kettle in the worker's station. Gravies may be prepared in a steam kettle or on the range, depending upon which is easier. Most staple ingredients used in making soups, sauces, and gravies are found in the work stations. This limits the amount of walking a cook must do to obtain necessary ingredients from storage areas, thus saving time and energy.

When you analyze your establishment's procedures in making soups, sauces, and gravies, do not approach the workers with an attitude that "your way is right and their way is wrong". There is no absolutely correct way to run any establishment, and what's good for the HFS may not be good for your work place. Concentrate instead, upon discovering WHY your establishment performs certain activities and how this is beneficial to its overall operation.

HFS EXERCISES

1. Who is responsible for making soups in your establishment?

2. Are the soups served in your work place made from scratch, from canned products, or from dried soups?

3. List any soups served where you work that are served for a course other than "appetizer".

4. Consult with your head cook to determine how many different sauces and gravies are prepared in your work place; list them below.

5. From the above list of sauces, categorize them as being either "basic" or "secondary" sauces.

SKILLS

Soups, Sauces, Gravies

27. Use a wire whip to stir and blend
28. Use a ladle.
29. Prepare a Hollandaise sauce
30. Make a slurry
31. Make a roux
32. Thicken a gravy or a stew

RELATED SKILLS: #'s, 3, 10, 12, 23, 42, 53 (for ingredients).

ABOUT LESSON 7

The material in Lesson 7 deals with the basic types of desserts that are served in a food service operation and the forms in which they may be purchased. After you complete this lesson, you should have a knowledge of different types of convenience products in the dessert category and how to evaluate the considerations involved in whether or not to purchase such convenience items. You should also know how to portion desserts and know why portioning is important in the operation of a food service facility.

STUDENT DIRECTIONS

1. Read pages 1-7.
2. Complete the Workbook Exercises on page 8.
3. Check your answers with the Workbook Key on page 9.
4. If you have answered questions incorrectly, re-read the appropriate material and re-answer any questions you missed before going on to #5.
5. Read the HFS SPECIFICS on pages 10 and 11.
6. Answer the HFS questions on pages 12 and 13.
7. On page 14 you will find a list of SKILLS appropriate to this lesson. Follow the procedure for checking off SKILLS.
8. You have now completed Lesson 7. If you still feel you do not understand any part of this lesson, consult with a classmate, a fellow worker, the establishment supervisor, or the University instructor about your questions. You will be given a quiz on the material presented in Lesson 7 during the next class seminar.

6/7/72 MER 2268: SW

DESSERTS

The word "dessert" can be defined in many different ways. Generally, we will assume that it is the final course that serves to round out the meal both nutritionally and by fulfilling individual tastes. It may be served hot or cold and may be light or heavy. The dessert usually provides sweetness to satisfy the appetite. It should be attractive in color and served in an appealing manner.

Desserts should complete the meal but not dominate it. The product should be of high quality with good flavor, color, and texture. A very important aspect of desserts is that they incorporate many essential vitamins and minerals that may not be provided in the other courses of the meal.

There should be a good variety of desserts served at each meal. They may include pies, cakes, puddings, ice creams, sherberts, gelatins, fruits, and others too numerous to mention. Today, with all the frozen desserts, mixes, and convenience foods, it is hardly worth the time and effort involved to prepare many foods from "scratch." Therefore, we will assume that cakes are made from mixes, pies are bought frozen, and as many other high quality convenience foods that can be purchased are used. This will eliminate the bakery unit of the kitchen to a large degree.

For our purposes we will divide such as pies and cakes dessert items into four categories. (We will buy other dessert items in convenience forms.) They are fruits, gelatins, milk and eggs, and desserts made with cereals.

Fruits

All types of fruits may be used for desserts. They may be served alone as fresh, baked or stewed, canned or preserved or frozen, with or without sugar. These are light desserts and should be served at the end of a heavy meal.

Fruits may also be used in fruit puddings, in fruit souffles or whips, or in a variety of frozen desserts such as sherbert, ice cream, or water ice.

6/6/72 MER 2265:SW

The following methods are used for cooking fruits:

1. Cooking in a sirup or water solution. This is the method most frequently used to cook fruit. It retains the original shape of the fruit if a low temperature and low sugar concentration is used.
2. Baking such fruits as apples or pears is a popular method of cooking. The oven temperature should be about 350°. This method, if recipes are followed, also retains the shape of the fruit.
3. Some fruit is glazed. This can best be done in the oven. A thin sirup is prepared from water or fruit juice, sugar, and seasoning and is poured over the fruit. This is covered and placed in the oven for 10 to 20 minutes. During the cooking period the fruit should be turned once.
4. Fruits may be broiled. Ingredients such as lemon, spice, and various seasonings may be added before placing the fruit under the broiler.
5. Occasionally fruits are braised or sauteed in a pan in a small amount of fat or oil.

Gelatin Desserts

Since we have previously discussed preparing gelatin in the salad section, we will just mention what types of gelatin dishes are appropriate for desserts.

Gelatin may be served plain, with fruit (except fresh pineapple), or it can be combined with a variety of dairy products. (Fresh and frozen pineapple contain an enzyme that prevents the gelatin from hardening. This enzyme is destroyed by heat, thus canned pineapple can be used in gelatin.)

Milk and Egg Desserts

Custards, puddings, and souffles are our primary concern in this section. In the majority of cases, a double boiler or a trunnion is used in the preparation of these desserts (except souffles). Milk scorches easily and eggs toughen if the heat is too high.

True custards consist only of eggs, milk, and a small amount of sugar added for flavor. One whole egg or two egg yolks will thicken one cup of milk, but more eggs are used if the custard is to be unmolded. They may be baked, stirred or steamed to finish cooking.

When preparing stirred custards, the mixture is placed in a double boiler. The water in the boiler is kept below boiling temperature since excessive temperatures and prolonged cooking causes a separation of the egg mixture and a curdled product.

In preparing baked custards, the eggs are beaten just enough to mix them well and the milk is stirred in. The mixture is poured through a strainer before baking to remove any stringy egg white. (The dishes are placed in a pan and placed in the oven. The water should be level with the amount of custard in the dish.) Custards may be baked without a water bath. This shortens the cooking period but produces a low quality product.

Puddings are served in a variety of ways to produce satisfying desserts. They range from plain puddings to bread puddings (a variation of a custard) to many other more fancy items. Although it is possible to prepare pudding from scratch, it is a very time-consuming and expensive process which has been replaced in most operations by some form of convenience item.

Desserts with Cereals

Many desserts are made with cereals such as tapioca, flour, or cornstarch and include the addition of eggs and milk. Flavorings, fruit sauces, and a variety of ingredients may be combined to produce many different and interesting desserts. Recipes should be followed precisely to produce a high quality product.

CONVENIENCE DESSERTS

Over the past five or ten years, convenience foods in general and particularly in the dessert category have come to play a very important part in the food service industry. As these convenience foods have improved in quality, they have become an acceptable substitute for the product prepared from scratch.

Today, although some establishments may pride themselves in their homemade pies, cakes, and baked goods, an overwhelming majority are turning to convenience products in part or in total. This may be for a variety of reasons. In the first place, although convenience products look to be more expensive, a close analysis shows this to be untrue. Especially in the bakery, the cost of manpower, product spoilage, waste, and time necessary to make dessert items from scratch greatly exceed the price of the convenient counterparts. Payroll cost is reduced since these items eliminate skilled employees used in basic food preparation. Because of the standardized yields in convenience products, it is easier to determine cost and portions. These items are also easy to store and inventory as compared to bulks of flour, sugar, and the like. In most cases, convenience foods do not require cooking but only heating (if any preparation is necessary). These products also offer greater menu flexibility and variety. Many of the ready-to-serve products eliminate waste and spoilage due to overproduction since the cook can just prepare what is needed when it is needed.

Due to the rigid quality control tests the convenience foods go through, there is guaranteed uniformity in quality and flavor. Since high quality raw foods are always used in their preparation, the results are high quality end products. In terms of being economical, convenience foods meet the need of a price that does not fluctuate because of the season.

Pies

Many different companies produce frozen pies that are either ready-to-serve or ready-to-bake. These come in a variety of sizes as well as types (by content). The majority of fruit pies are ready-to-bake; cream pies come ready-to-serve. Depending upon how fancy the product, the dessert cook may have to garnish a pie for serving or merely serve it. Instructions for baking and serving are printed on the package.

Some local operations may bake pies every day and deliver them ready to cut and serve. This may be a more economical method if the food service establishment can order accurately.

Still other companies make pie shells that can be filled with convenience ready-made pie fillings or homemade filling. Or, some food service facilities prefer making their own crusts but using ready-made filling or box pie-filling mixes. There seems to be an endless variety of choices for the establishments to make in order to suit their needs.

Portioning pies for service, although it seems simple, can mean an increased food cost if the correct number of slices per pie is not achieved. This also can cheat the customer if a standard size of the pie slices is not maintained. The best way to be accurate is to use a pie marker. The markers come according to the number of cuts desired. The marker is round with spiny arms extending from the center The marker center is placed in the center of the pie and depressed slightly. The spines mark the pie top and form the cutting lines. The marker is removed and a pastry knife or other dull spatula is used to cut the slices. The slices should be removed with a pointed spatula to retain the shape of the slice and eliminate the filling from falling out.

If a pie marker is not available, the whole pie should carefully be divided into slices of equal size. This is done by finding the center of the pie by making surface marks from one side to the other in two places (the marks should be only near the center and should be made on a line that cuts the pie pan in

half). For an even number of slices, cut the pie in half first. Then divide each half into equal parts, depending upon the desired number of slices. For an odd number of slices, make a very light line with the cutter to cut the pie in half. Then, make light marks along the edge of the crust to determine the size of each slice before cutting. Accuracy in portion size is a necessity to maintain cost controls and customer satisfaction.

Cakes

Use of convenience cake products is on the increase in food service operations. The type of convenience products purchased largely depends on the size of the establishment, the facilities it has, and available labor.

Some operations may choose ready-to-serve frozen cakes. Generally, these are packaged in small quantities--about enough for 12 servings or less.

Another possibility is purchasing cakes daily from a nearby bakery. In order to avoid unnecessary waste, it is necessary to order only what will be used in one day.

Box cake mixes have greatly simplified baking in the establishment. The dry ingredients are pre-measured and require only addition of liquid and eggs before mixing. The box cakes allow the establishment to prepare any necessary amount needed for a particular day. Although their preparation requires labor and facilities for baking, many operations prefer this type of convenience product.

Cake frostings come in ready-to-use cans or in pre-measured boxes. The box frostings require addition of at least liquid (usually water or milk) and possibly butter or margarine. When an operation chooses either one, it must consider that the box mix requires manpower to prepare it, time to make it, and the addition of ingredients that the ready-to-use frosting does not.

Puddings

The puddings used in today's quantity food operations are almost always convenience food items. The box mixes may be of two different varieties: pre-cooked (instant) to which only milk is added or that to which milk is added before it is cooked. Pudding also comes ready-to-serve in cans.

In conclusion, it is the responsibility of each individual establishment to make decisions upon use of convenience products. These decisions are usually based upon available facilities, necessary labor, comparing costs of similar items, and quality of the food items.

Conclusion

It should be understood that this unit was intended only to give you a very general understanding of basic desserts. The preparation of most desserts is not as difficult as most of the other station activities that we have described. This is primarily due to the incorporation of convenience food items into the operations of most restaurants and other quantity food production establishments. In many cases, the same principles encountered in dessert preparation have been explained in other sections of this course.

WORKBOOK EXERCISES

Lesson 7

1. Once custards are cooked they must be refrigerated. Why do you think this is necessary?

2. Considering what you know about sauces, what would you say is the purpose of a sauce in dessert preparation?

3. What two purposes would you say a whipped topping on a piece of pie has?

4. How many pieces of cake 2" x 3" can you cut from a cake pan that measures 1-1/2 feet x 2 feet?

5. Describe how you would cut a layer cake so that you have 12 pieces of equal size.

KEY TO WORKBOOK EXERCISES

Lesson 7

1. Bacteria will multiply rapidly in warm conditions.
2. They add interest and flavor to a bland tasting dessert item.
3. It serves as a garnish and also adds flavor to the pie.
4. 48 pieces
5. Find center of cake; divide cake in half with light mark across icing; divide in half again to section off four quarters; divide each quarter into three equal parts; check to see that lines form 12 equal parts; cut through both layers of cake on lines.

HFS SPECIFICS: LESSON 7

The HFS employs one full time worker as its dessert cook. The responsibilities of this person include baking pies and cakes, making puddings and gelatins, making and applying dessert toppings, sauces, and icings, portioning finished desserts, and serving ice cream dishes.

The pies in the HFS are all purchased frozen. Some of these must be baked before serving while others are ready-to-serve. The use of convenience pies in the HFS greatly reduces the amount of work involved in the dessert station. Some pies may require an additional topping, which the dessert cook prepares and places on each individual cut after portioning.

Cakes in the HFS are made from pre-packaged mixes that require the addition of eggs and liquid. The dessert cook follows the box directions for combining ingredients, mixing and baking the cakes. These cakes may have to be iced; if this is the case, a box icing mix or ready-to-use icing is used. The cook may be required to prepare a sauce or topping for the cake that is applied after portioning and before serving.

Gelatins and puddings are also made by the dessert cook. They are usually made from box products, although puddings may be purchased ready-to-serve. A variety of fruits, toppings, and/or sauces may be used in gelatin and pudding preparation to produce an attractive, appetizing dessert.

Ice cream products are usually made to order by the dessert cook. During the serving periods, the waitresses make their requests at the window in the dessert station and receive the item there.

Once they are prepared, some desserts must be refrigerated or frozen. The dessert cook is responsible for properly storing these products before they are served in order to retain a high quality product. The dessert cook is also responsible for storing leftover desserts. If these are not properly handled, it could mean a loss to the establishment. Desserts that need to be refrigerated before

serving are frequently placed in the pass through refrigerator. This makes the dessert supply easily accessible to both the waitresses who remove the desserts and the cook who supplies the desserts.

Like the ice cream dessert products, portioned pies and cakes that have been placed on plates are placed on the shelf beside the window in the dessert station where they can be easily reached by the waitresses. Before they are placed there for serving, they may be placed on trays and stacked on the adjustable shelving in the dessert station for easy access.

The set up of the dessert station was designed to allow space for moving in a relatively compact area. (See Figure 5) Staple products are kept in movable containers under the work table along the wall. Smaller containers of ingredients that are used frequently are stored on shelves above the same work table. The trunnion kettle is used for preparing sauces that must be cooked. It is also used for making gelatin products. The mixer is used for combining ingredients for cakes, icings, and toppings. All baking is done in the stack ovens in this area. Keep in mind that the "dessert station" in your establishment may not be organized like the one in the HFS. The activities performed here may be done in many different areas in the establishment where you are employed. Note also, that there is no large bakery unit in the HFS. All breads, rolls, and other such products are purchased in ready-to-use or ready-to-serve forms in order to eliminate the cost of labor and the cost of equipping and operating a large bakery unit.

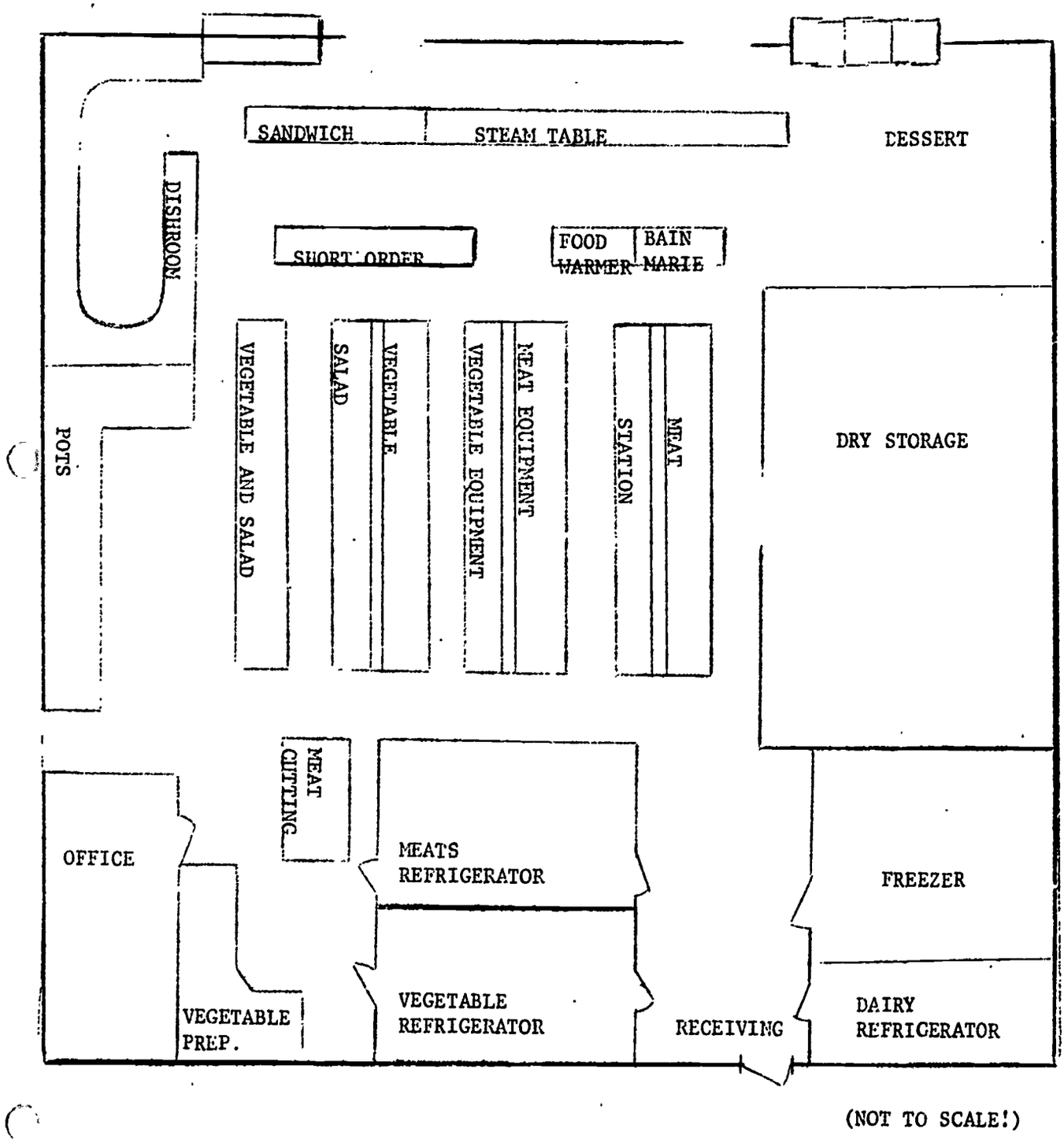
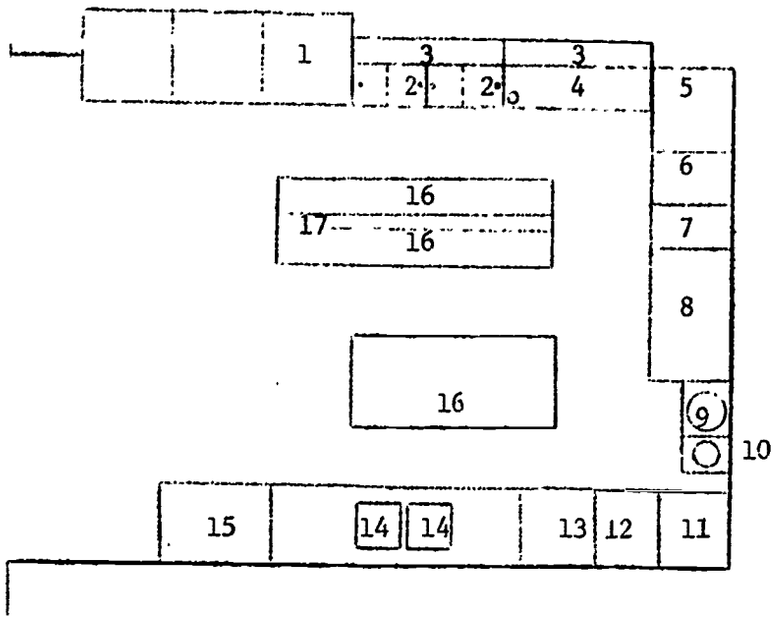


FIGURE 1.2: HFS KITCHEN

5/30/72 MER 2254: SW

Figure 5 : DESSERT STATION



KEY

1. Refrigerated pass-through for desserts
2. Ice cream freezing unit
3. Open service window
4. Dessert pick up station
5. Storage for serving plates and dishes
6. Stack shelves for finished desserts
7. Cooling racks
8. Oven
9. Trunnion kettle
10. Mixer
11. Storage shelves for dry ingredients
12. Freezer
13. Refrigerator
14. Sinks and drainboard
15. Shelves for clean pans and utensils
16. Work table
17. Shelf for holding recipes and worksheets

HFS EXERCISES

1. Draw a rough layout of your bakery/dessert area including equipment.

2. List all the desserts served in your work place for any one meal and determine which belong in the categories mentioned on page 1 of "Desserts."

3. Name some dessert items in your establishment that are prepared using canned fruit;

items using fresh fruit:

4. List as many convenience foods as you can that your work place uses in making desserts.

5. What is done with leftover cake and pie in your work place? If it is saved, how is it stored, and how long is it kept?

SKILLS

Dessert Preparation

33. Whip egg whites
34. Prepare a custard
35. Prepare a cooked fruit dessert
36. Make a dessert
37. Make a dessert topping or sauce
38. Slice a pie
39. Portion a cake (2 different skills)
40. Use a scoop for ice cream

RELATED SKILLS: #'s 10, 14, 16, 22, 23, 27, 42.

ABOUT LESSON 8

The material in Lesson 8 deals with the principles of preparing breakfast items and sandwiches. After you complete this lesson, you should be familiar with all types of egg preparation, hot cereal preparation, and preparation of other breakfast items. You should be able to prepare quality products in these three categories. From the sandwich section, you should learn how to set up a sandwich station so that you can prepare sandwiches quickly and with an absence of unnecessary motion. You must be able to portion both solid and salad-type sandwich ingredients and, when required, you should be able to prepare high quality sandwich fillings. With practice, you should be able to prepare both high quality breakfast and sandwich products--the main key here is good organization.

STUDENT DIRECTIONS

1. Read pages 1-6.
2. Complete the Workbook Exercises on pages 7 and 8.
3. Check your answers with the Workbook Key on page 9.
4. If you have answered questions incorrectly, re-read the appropriate material and re-answer any questions you missed before going on to #5.
5. Read the HFS SPECIFICS on pages 10 and 11.
6. Answer the HFS questions on page 12.
7. On page 13 you will find a list of SKILLS appropriate to this lesson. Follow the procedure for checking off SKILLS.
8. Read pages 14-17.
9. Complete the Workbook Exercises on page 18.
10. Check your answers with the Workbook Key on page 19.
11. If you have answered incorrectly, re-read the appropriate material and re-answer any questions you missed before going on to #12.
12. Read the HFS SPECIFICS on pages 20 and 21.
13. Answer the HFS questions on page 22.
14. On page 23 you will find a list of SKILLS appropriate to this lesson. Follow the procedure for checking off SKILLS.
15. You have now completed Lesson 8. If you still feel you do not understand any part of this lesson, consult with a classmate, a fellow worker, the establishment supervisor, or the University instructor about your questions. You will be given a quiz on the material presented in Lesson 8 during the next class seminar.

6/8/72 MER 2273:SW

EGG AND BREAKFAST DISHES

Classifying and Grading Eggs

Fresh eggs come in various sizes and grades. The size of an egg has nothing to do with its grade. The weight of a dozen eggs of a particular size determines how the eggs are classified. The following chart expresses this:

Size (Weight Class)	Minimum Weight/Dozen
Jumbo	30 ounces
Extra Large	27 ounces
Large	24 ounces
Medium	21 ounces
Small	18 ounces
Peewee	15 ounces

If you remember that the minimum weight for LARGE eggs is 24 ounces, it is easy to find the other weight classes by adding or subtracting three.

Egg grades are determined by appearance and condition of the shell and the contents of the shell. This can be done by breaking the egg on a flat plate or by candling. The candling process involves holding the egg before a bright light and looking through the porous shell. The candler can see the size of the air pocket in the egg which is small when the egg is fresh.

U. S. quality grades are AA, A, B, and C. The AA eggs are the finest quality. The A grade is suitable for table use. Grade B eggs are used primarily for baking. Grade C eggs are only used for baking. It is unusual for a food service establishment to receive eggs below Grade A quality.

Because egg quality deteriorates very quickly when exposed to warm temperatures, they should be refrigerated until they are to be used. It is best to put them in a covered container since they pick up off-flavors through their porous shells. Eggs should never be stored near onions, melons, or cheeses for this reason.

6/6/72 MER 2266:SW

Egg Cookery

The cooking process changes the texture and flavor of eggs. Besides making eggs more palatable, cooking makes the egg white easier to digest. There are many popular methods of preparation of which the following are most common:

Poaching

Only the finest quality eggs (Grades AA and A) should be used for poaching. Eggs of lower quality have thinner whites that break up in the poaching process. This results in an egg yolk with very little white surrounding it.

To poach eggs, break them individually into a small container or on a small plate. Add one teaspoon salt and one tablespoon lemon juice or distilled vinegar to each quart of water used. (This makes the egg more tender and causes better coagulation of the white.) Carefully transfer the egg into the simmering water (not boiling) by sliding it in along the side of the pan. (The water in the pan should be at least one and one-half inches deep.) Simmer the eggs about four or five minutes until the whites are set and the yolks are firm. Remove from the water with a slotted spoon or a skimmer and serve immediately.

Simmering

Eggs should never be boiled--only simmered. This helps prevent over-cooking. The following simmering methods are used to cook soft cooked and hard cooked eggs:

1. Place eggs in boiling water. Return to simmering temperature and cook to desired doneness. Soft cooked eggs require three to five minutes, medium eggs cooked seven to eight minutes, hard cooked eggs about 15 minutes.

2. Place eggs in cold water. Bring water to a boil, reduce to simmer, and cook to desired doneness. Soft cooked eggs require about one minute, medium cooked eggs three to five minutes, hard cooked eggs eight to ten minutes.

3. Place eggs in a pan and cover them with hot water. Bring the water to a boil, reduce heat, and simmer for about three minutes (soft cooked). Medium eggs require about six minutes, hard cooked eggs, about 11 minutes.

4. Place eggs in pan in the steamer and follow steamer directions for preparing soft cooked or hard cooked eggs.

NOTE: After removing hard cooked eggs from the heat, cool the eggs by placing them immediately in cold water. This prevents a greenish ring from forming around the yolk which makes the egg look poorly.

Frying

Only high quality eggs should be used for frying since they produce a better looking fried product. Eggs may be fried in butter, margarine, shortening, or any other suitable fat. The temperature of the fat is very important since, if it is too hot, it will brown and toughen the eggs. If it is not hot enough, the egg will have a tendency to spread (especially if frying is done in a large pan or on the griddle). Clarified butter is a good fat to use since it does not burn quickly and gives flavor to the eggs. After the egg is placed in the fat, it may be cooked with or without turning it over, it may be covered so that a film covers the yolk, or hot fat may be spooned over the egg. The cooking process should be completed as quickly as possible since prolonged cooking toughens the egg.

Scrambled Eggs

Grade A or Grade B eggs are usually used for scrambling. It is rare to find any other than Grade A eggs in a good food service operation. The eggs are broken into a bowl and beaten slightly with a fork or wire whip. Cold water, milk, or cream (about one tablespoon per 2 eggs) may be added to give the eggs a smoother texture and better flavor. This mixture is placed in a heated, buttered pan. The eggs should start to cook as soon as they are put in the pan. The mixture is stirred gently so that all of it cooks evenly. Care should be taken not to overcook the eggs or to cook them at too high a temperature. This toughens them. Since the eggs will continue to cook after removal from the pan, they should be slightly under the desired doneness when removed from the heat. They should be served immediately. In some establishments, dried eggs may be used for making scrambled eggs.

Shirred Eggs

Eggs of high quality are broken into greased tins or baking dishes and are placed in a 350° oven for about 20 minutes or until firm. They may also be placed on the top of the range first (until the white sets) and then finished in the oven

or under the broiler. Care should be taken not to cook the eggs to too hard a state since cooking will continue after the eggs are removed from the oven. The heat retained by the dish causes the cooking to continue.

Omelets

Plain French omelets are made of the same ingredients as scrambled eggs. They are cooked differently, though. The beaten egg mixture is not stirred but lifted so that the uncooked eggs run to the bottom of the pan. The result is an egg item in one solid piece. To serve the omelet, fold it in half with a spatula, and serve. A variety of ingredients including fruits, cheese, vegetables, or meats may be added to the plain omelet once it has started to set in the pan. The fruits should be well-drained and meats should be pre-cooked.

A fluffy omelet is made by separating egg yolks from egg whites. The yolks are beaten separately from the whites (they too are beaten)1 The whites are folded into the yolks. The mixture is poured into a frying pan containing hot butter or margarine and cooked on the range for one minute to start the cooking. It is then placed in a 325° oven for 15 or 20 minutes to complete the cooking process. During this time it should not be disturbed. A cut is made across the center and it is folded in half and served like the French omelet. Like the French omelet, it may also have a variety of jellies, meats, or other ingredients added to it.

Souffles

The procedure for preparing a souffle is similar to that of the fluffy omelet. The egg yolks are whipped with a fork or wire whip until they are well blended. The liquid used is a thick white sauce. A small amount of this white sauce (heated) is added to the egg yolks. This mixture is then added to the rest of the hot white sauce. The mixture is folded into beaten egg whites. It is placed in a baking pan and placed in a 300° F. oven until a knife inserted in the center comes out clean. The sides of the pan should not be greased since this prevents the souffle from rising. To achieve good (continued on Page 5)

height, a paper collar higher than the pan may be placed around the pan sides. The souffle rises against the paper during the baking process. The paper is removed before the souffle is served.

It should be noted here that frozen eggs and dehydrated eggs may be used in some establishments for baking and occasionally for scrambling.

Breakfast Dishes

Pancakes or Griddle Cakes

Pancakes are a favorite breakfast item. They are made from a thin batter and are baked on a griddle. The batter may be made from scratch although most quantity food places uses modern mixes which require addition of milk, eggs, and shortening or butter. If two tablespoons of shortening are used per cup of liquid, the griddle needs only to be lightly greased at the start of the baking process. A temperature of about 425° F. is necessary to grill pancakes. The pancakes remain very tender if cooked quickly and are turned only once. They should be turned when bubbles in the batter start to appear and the edge begins to show signs of drying.

Pancakes may be plain or various fruits, berries, or nuts may be added to the batter. When fruits or other ingredients are used, care should be taken that they are coated with batter so that they do not stick to the grill. These are baked in the same way as previously mentioned. Because of their nature, pancakes should be made to order when possible and served immediately.

Waffles

Waffles are made with a moderately rich batter containing sugar and more shortening and eggs than pancake batter. This results in a thicker batter.

Good waffles are tender and crisp. The batter should not be overmixed since this results in a tougher product. Crispness is achieved by baking at a high temperature (425°) on a waffle iron. They should be cooked until golden brown until steam stops coming from the waffle iron. Like pancakes, waffles should be made to order and served immediately.

French Toast

A third popular breakfast item is French toast. Like pancakes and waffles, French toast is served with butter and syrup--preferably warm maple syrup or a variety of berry-flavored syrups or jellies.

French toast is made by dipping slightly stale bread in a mixture of eggs, milk, and salt. Both sides of the bread should be coated. The bread is fried on a griddle or in a pan in butter until lightly browned. It is frequently sprinkled with nutmeg or powdered sugar and served immediately.

Meat Items on Breakfast Menus

Sausage, ham, and bacon are very popular breakfast items. These products are frequently pre-cooked prior to the breakfast hour in order to make preparation for serving easier.

Sausage

Like all other pork products, sausage should be cooked well done. Care should be taken to refrigerate sausage properly. Link sausage or sausage patties are available. Link sausage may be pre-cooked by blanching, pan broiling, or baking in the oven. Patties are pre-cooked by baking in the oven or pan broiling. Care should be taken not to overcook either type of sausage since this will result in a dry, tough product. Before serving the sausage links or patties may be heated on a greased grill or under the broiler.

Bacon and Ham

Slab bacon, Canadian bacon, and many varieties of ham are served as a breakfast item. Canadian bacon and some hams are pre-cooked and need only be heated for serving.

Slab bacon is frequently half-cooked before the breakfast period. This is usually done in the oven. Strips are placed on a baking pan or on racks in a pan. They are partially cooked, removed from the oven, and put aside; cooking is completed for service as needed. The final cooking process may be completed in the oven, on the range top, or under the broiler.

WORKBOOK EXERCISES

Eggs and Breakfast Items — Lesson 8

1. What grade (s) of eggs are suitable for making fried or poached eggs?

2. Why are Grade C eggs used only for baking and not for fried eggs?

3. What are two basic rules to follow in egg preparation?

4. How can a greenish ring around the yolk of hard cooked eggs be prevented?

5. A. How are scrambled eggs and French omelets alike?

   B. How do they differ?

6. How does a fluffy omelet and a souffle differ?

7. What is the difference between pancake and waffle batter?

8. Why is it suggested that sausage be cooked to a well done state?

KEY TO WORKBOOK EXERCISES

Lesson 8

Eggs and Breakfast Items

1. Grades AA, A
2. The quality of the egg white is not as good as higher grades, nor are they probably as fresh and tasty.
3. Cook as quickly as possible; cook at low heat.
4. By taking all precautions not to overcook them and by placing eggs in cold water immediately after removing them from the heat.
5. A. The ingredients are the same and are in the same amounts.

   B. Scrambled eggs are stirred while cooking; the omelet is merely lifted so that the raw mixture flows to the bottom of the pan. This prevents the omelet from breaking.
6. A souffle uses a thick white sauce as the liquid; fluffy omelets use water as the liquid.
7. Pancake batter is thinner and less rich than waffle batter.
8. Like other pork products, cooking to the well done state protects against the growth of the microbe that causes trichinosis.

HFS SPECIFICS

BREAKFAST AND SHORT ORDER COOK

The HFS employs one full time worker to prepare breakfast courses and short order luncheon items. The quick pace of this job requires that this person be very organized and be able to produce high quality items while he is under pressure.

The breakfast menu in the HFS includes all possible types of eggs, bacon, ham, sausage, hot cereals, hash brown potatoes, waffles, French toast, hot cakes. The short order cook is not responsible for preparing the toast or other bread items that may accompany these orders--this is the job of the sandwich station worker.

Every day, the shord order cook performs the following activities: He prepares fried eggs and scrambled eggs in specially treated egg skillets that are made from cast aluminum. Before the rush period, he breaks eggs one by one and places them in a concainer (which is later packed in ice to keep the eggs fresh), adds milk, seasonings, and thoroughly mixes the ingredients so that they can easily be portioned by ladling into a skillet for cooking. A container of melted, clarified butter is prepared and placed near the range for use in making fried and scrambled eggs. After each pan is used, it is not washed but wiped clean with a soft cloth. This prevents the skillet from losing its treated surface so that eggs will not stick to the pan. A large pan or skillet is filled with about 2 inches of water and placed on the range. This will be used for preparing poached and soft cooked eggs. The short order cook also prepares pancake and waffle mixes before the serving period and refrigerates them before they are to be used.

Once the serving period begins, the shord order cook studies order slips that waitresses place on the counter above the sandwich station. He prepares eggs in skillets or in the pan of simmering water on the range. He makes pancakes, French toast, sausage (that has been pre-cooked), and hash brown potatoes on the grill. He makes waffles on the waffle iron. Ham and bacon that have been precooked are heated under the broiler. Once an item has been prepared, it is put on a plate, passed to the sandwich station worker who puts any bread item required on the plate, and

places the finished order on the shelf with the waitress' slip under it. It is necessary that the slips be placed on the counter in the order in which they are taken. If not, the first order on the counter may be the last one to be filled.

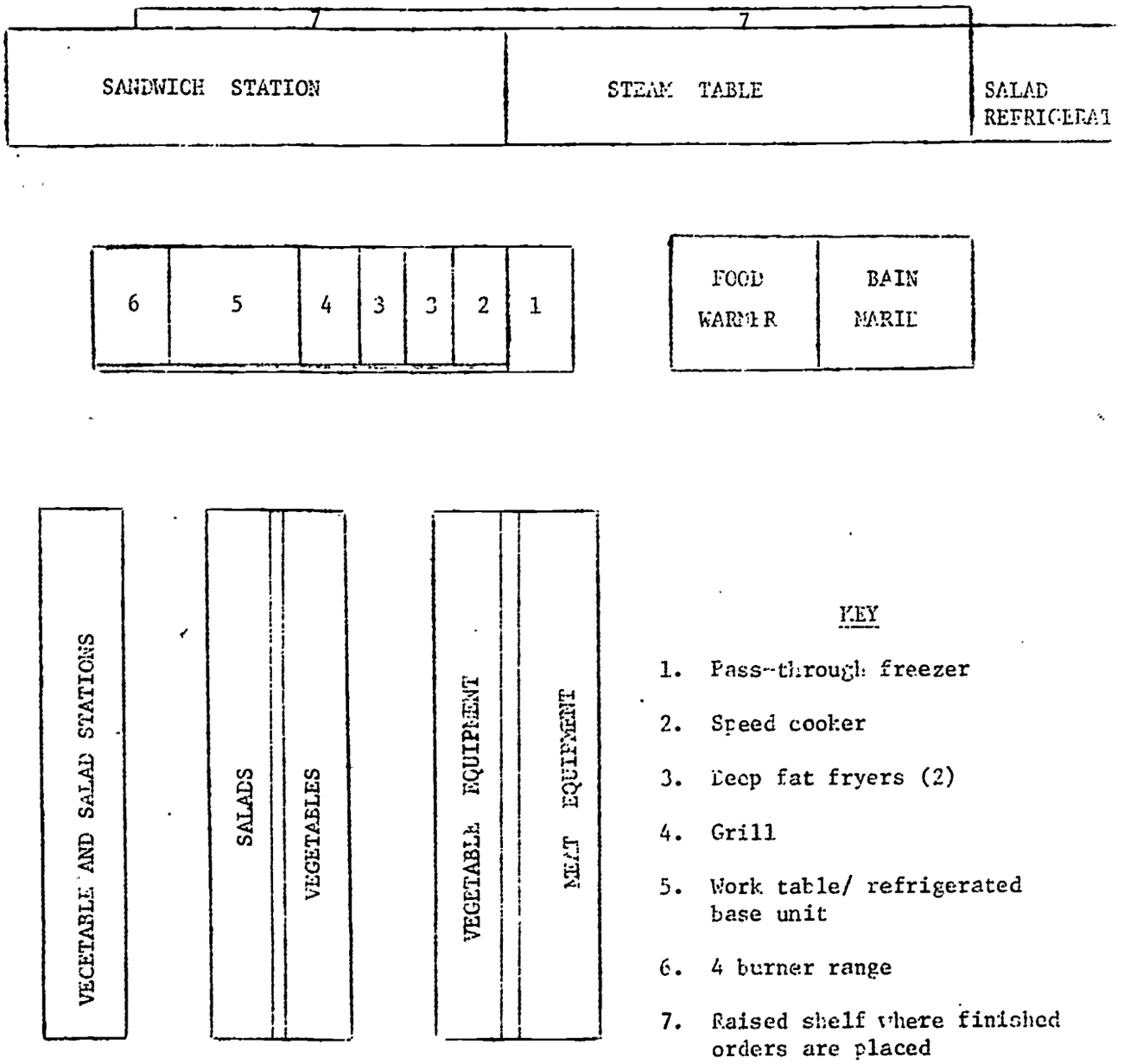
In some establishments, the shord order system differs. The waitresses may not write down the orders. They may just call them to the cook who must remember the order and prepare it accordingly. In some cases, the shord order cook may take the orders from the customers himself. You can see how difficult this can be--the cook almost needs eight hands!

Probably the most important task of the short order cook is his ability to recognize a quality product. Not only must he prepare food items properly---he must decide if the item is good enough to serve. This is a skill that comes largely with experience. Using proper temperature and times to prepare products becomes second nature with practice.

Once the breakfast rush is over, the shord order cook may prepare luncheon items to order if they require broiling or grilling. He is also responsible for deep fat frying items and cooking items in the speed cooker for the steam table. All frozen vegetables are steamed in the speed cooker as needed for service. In addition, he may have to garnish prepared items on plates, and may be required to store leftovers and un-used food items. The shord order cook must keep a clean, organized station and must practice safety procedures at all times.

Now that you have been oriented to all the different tasks that the short order cook must perform, you should be able to see that a well-organized, compact work station is a necessity if this job is to be performed adequately. (See Figures 1.2 and 6 for placement and layout of this station.) The layout in Figure 6 emphasizes the arrangement of equipment and work areas to facilitate product flow during all peak periods of operation.

Figure 6 : SHORT ORDER STATION



KEY

1. Pass-through freezer
2. Speed cooker
3. Deep fat fryers (2)
4. Grill
5. Work table/ refrigerated base unit
6. 4 burner range
7. Raised shelf where finished orders are placed

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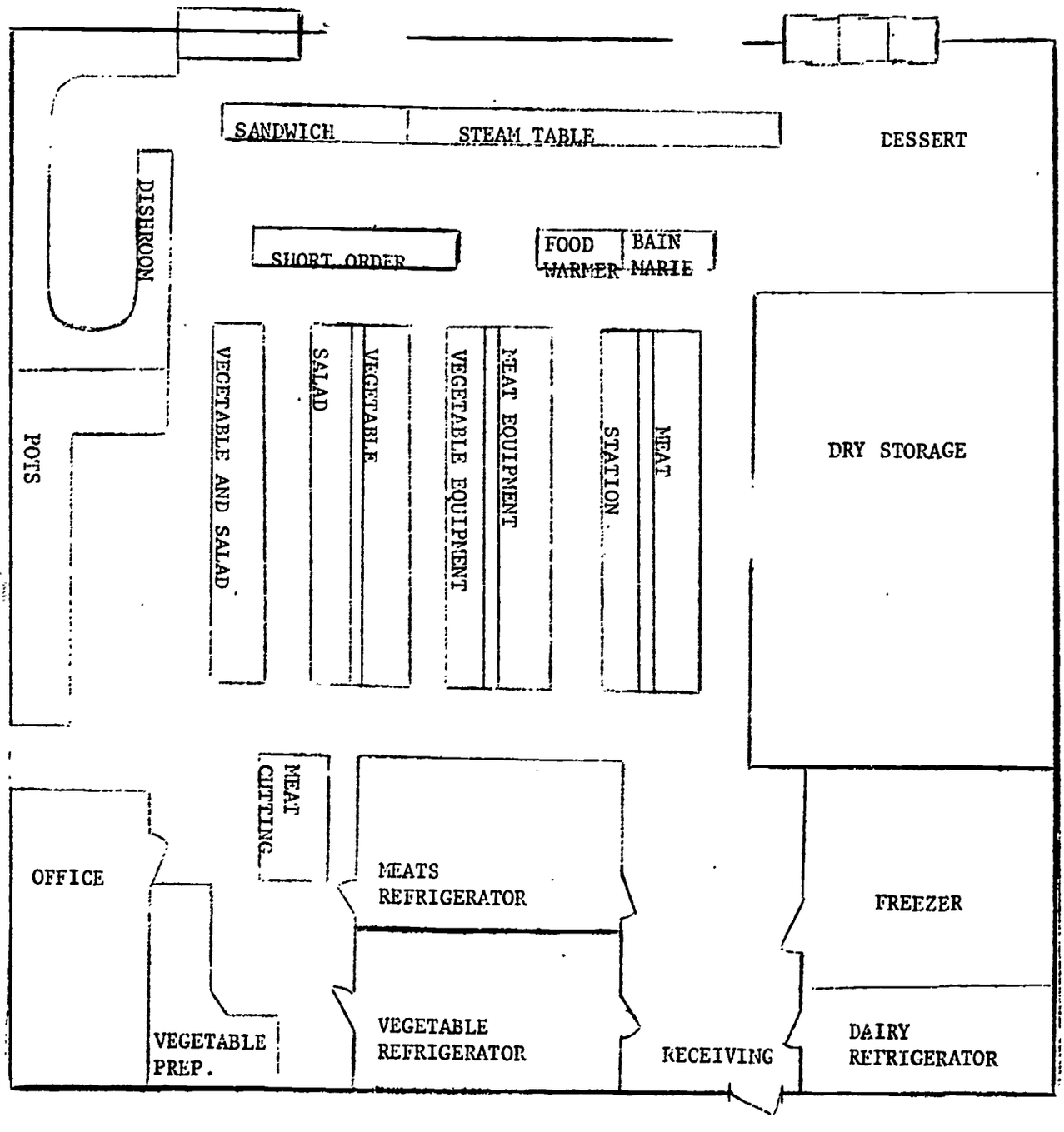

FIGURE 1.2: HFS KITCHEN

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HFS EXERCISES

1. Describe the responsibilities (activities) of the person who prepares breakfast items in your establishment.

2. Draw the layout of the area where this person (described in #1) works.

3. How does this layout differ from the HFS Short Order station? (Figure 6)

SKILLS

Egg and Breakfast Items

41. Crack an egg without breaking the yolk
42. Separate egg white from egg yolk
43. Scramble an egg
44. Fry an egg
45. Poach an egg
46. Make an omelet
47. Make pancakes
48. Treat a frying pan for preparing eggs

RELATED SKILLS: #'s 2, 4, 9, 10, 11, 24, 27, 28, 33, 40, 64, 66.

SANDWICHES

Sandwiches are a very popular item in the American food service industry. The variety of breads and fillings satisfy a large number of different tastes. They may be prepared before service and wrapped or stored without loss of quality. They may also be made to order.

Sandwich bread should neither be soggy or dry. It should be fresh--many establishments use day-old bread because it is easier to work with and is still fresh and flavorful. A variety of different breads, rolls, and buns may be either fresh or frozen before use.

Types of sandwiches include open face, club, toasted, hot, grilled, and the regular "plain" types. (There are also many fancy sandwiches which we will not discuss.) The open face sandwich is exactly what it sounds like. The filling of the sandwich is open--not covered by bread. The club sandwich is made with three slices of bread, sliced meat, lettuce and tomato. Cheese may also be part of the filler. Toasted sandwiches are made with toasted bread items. They differ from grilled sandwiches in that only the bread is toasted. The grilled sandwich is grilled after the whole sandwich is made. Hot sandwiches usually are made with hot sliced meats and are covered with gravy.

The term "sandwich fillings" refers to the product between the slices of bread. It usually gives the name to the sandwich--for example "chicken salad." There are three basic types of fillings: sliced meats, cheeses, and salad fillings. The amount of each used in making sandwiches varies from place to place. Sliced meats and cheeses are weighed to control portion size. Salad fillings are usually scooped.

Sliced meats and cheeses look and taste better when sliced very thin. They are then weighed and placed by portion on portion papers to make the preparation easier.

Salad fillings may be made from quality leftovers or from pre-cooked items. The fillings should be of proper consistency so they spread easily but are not runny. Runny fillings make the bread soggy, make the sandwich harder to eat, and provide a lower quality product. Too dry a filling makes a sandwich less tasty and harder to swallow. Recipes should be followed closely to produce a good filling.

In addition to the bread and the filling, a spread may be used in making sandwiches. This refers to the softened (not melted) butter or margarine that is placed on one or two slices of bread--depending on the nature of the sandwich filling. The spread may also take the form of mayonnaise, salad dressing, or a variety of other products. Spreads add to the palatability of sandwiches and prevent very moist fillings from soaking into the bread, thus creating a soggy sandwich.

If lettuce or other greens are to be used on sandwiches, they should be crisp, clean, and dry. When cold sandwiches are made in advance, it is advisable to place greens and particularly tomatoes on them at the last possible minute before serving. This prevents a soggy product from occurring.

Garnishing sandwiches varies from establishment to establishment. It may be as simple as putting potato chips on the plate or it may be very involved. We will not deal with garnishes here.

Sandwiches may be sliced in a variety of ways to produce an attractive product. They are also arranged in a variety of ways on the plate. Popular cuts include the following as pictured:

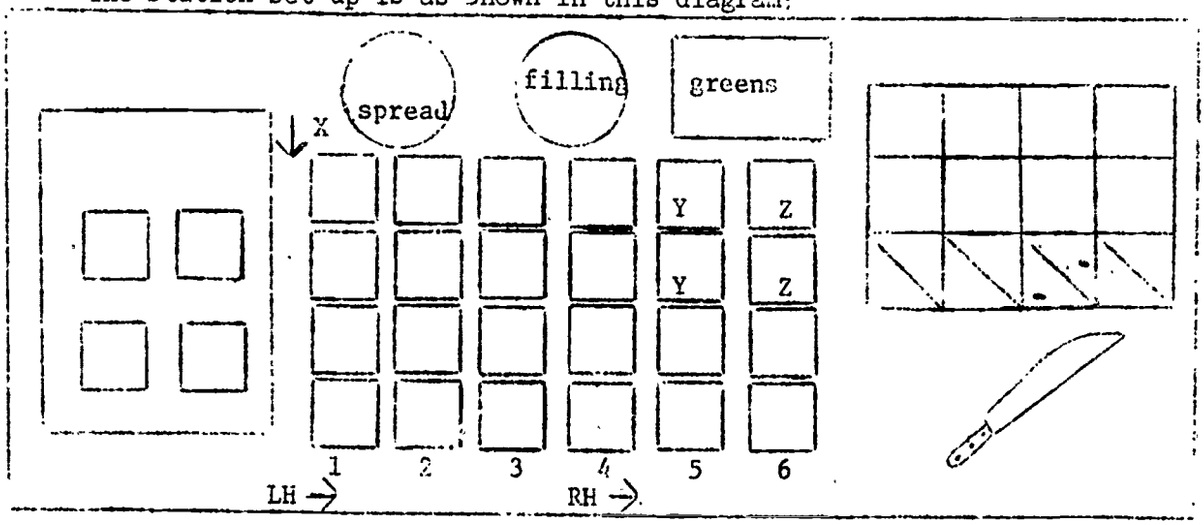
The size of the plate chosen for serving may depend upon how the sandwich is cut and garnished.

Setting Up a Sandwich Station

In order to simplify work in the sandwich station, it is necessary to organize the ingredients and tools in an "assembly line" fashion. Both hands should be used by the worker whenever possible. Body motions should be kept at a minimum since this causes fatigue. Sanitation and safety should be practiced at all times. Cleaning as you go reduces the work involved in maintaining a clean station.

The following procedure is one that is well-organized and very efficient. The station has been designed (set up) for a right handed worker.

The station set up is as shown in this diagram:



1. Bread loaf is divided in half and placed on tray at left.

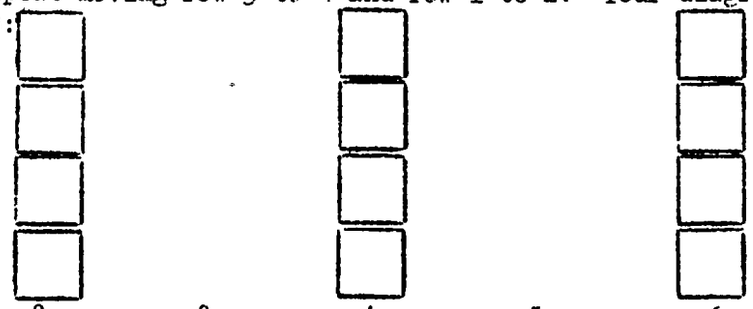
2. Pick up three slices with each hand. Using both hands, place the six slices in a row. (Leave about one inch between slices.) Left hand begins at LH, right hand at RH and moves in direction of arrow, dropping slices. This is repeated until four rows are in place.

3. For solid fillers: Dip spatula in softened butter and pick up enough to spread four slices of bread. Begin with row 1 at the back and work toward yourself (from X in direction of arrow). Hold the slice down with your left hand and spread the butter evenly to the edges of the bread in as few motions as possible. Continue until all rows are buttered. Place portioned meat, cheese, etc. on each slice in rows 2, 4, and 6.

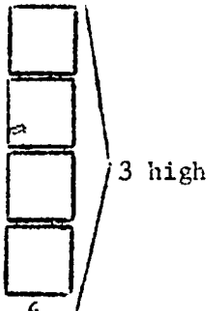
   For salad fillers: Place one portioned scoop of filling on each slice in rows 2, 4, and 6. Spread the filling evenly to the edges of the bread slice on which it was placed. Next pick up enough mayonnaise (spread) on its own spatula and spread it evenly (working from rear to front) on rows 1, 3, and 5.

4. If greens are desired, place them on the filling side of the sandwich.

5. Pick up two slices (one in each hand) at the rear of row 5 (y) and place them on the row 6 (z) slices directly across from them. Finish rows 5 and 6 and repeat moving row 3 to 4 and row 1 to 2. Your diagram should look like this:



6. Place the sandwiches in row 2 on top of those in row 4 (use both hands). Next move the two-high stacks (row 4) to row 6. You should have what looks like this:



7. Take the French or serrated knife and cut diagonally through each of the stacks in row 6. Make sure the three high stacks are even. Use a sawing motion with the knife--DO NOT PRESS DOWN HARD. This will crush the bread.

8. Unless sandwiches need to be wrapped, place them on empty tray (lined with paper) in the upper right hand corner of the diagram. Properly store until serving.

The above procedure works very well when making large quantities of sandwiches prior to the serving period. It does, however, require a large work area. When the work space is limited and when sandwiches are made to order, this system obviously cannot be used. In those cases, the sandwich maker should have assembled all breads, fillings, and spreads in the work area before the rush hour. She then proceeds to fill individual orders in the same manner as the short order cook described in lesson 8. Her efficiency is dependent upon the organization of her station and her ability to work quickly and complete the task with a minimum amount of movement.

WORKBOOK EXERCISES

Lesson 8

Sandwiches

1. Why is it important to have standard portion sizes?

2. Why is day-old bread recommended in fresh sandwich preparatic .?

3. Why is melted butter or melted margarine not used as a spread in sandwich preparation?

4. Besides being more flavorful and more attractive in sandwiches, why do you think meats and cheeses are thinly sliced?

5. Redesign the work station shown on page 17 for a left-handed person.

KEY TO WORKBOOK EXERCISES

Lesson 8

Sandwiches

1. It limits waste, produces a "standard" portion, and makes cost control easier.
2. It is easier to work with because it is more firm.
3. It makes the bread soggy.
4. It gives the sandwich a "thicker" appearance and the customers feel there is more meat or cheese in it.
5. It is the mirror image of the diagram on page 17.

HFS SPECIFICS
SANDWICH STATION

The luncheon menu in the HFS offers a wide variety of sandwiches including toasted, club, grilled, hot, and the plain types. It is the responsibility of the sandwich station worker to prepare these sandwiches in part or completely for service to the customer.

Because of the large volume of different types of sandwiches available in the HFS, the sandwich work area must be large enough for the worker to perform all necessary tasks. The station must be well-organized so that no time is lost in searching for necessary ingredients or in moving around unnecessarily. (See Figure 7.) The toaster is close to the work area so that slices of bread can be toasted within reach of the worker. All solid fillings (meats and cheeses) can be sliced on the slicing machine in the station and portioned there before use. Salad-type fillings may be prepared by another worker in the kitchen or may be prepared by the sandwich man.

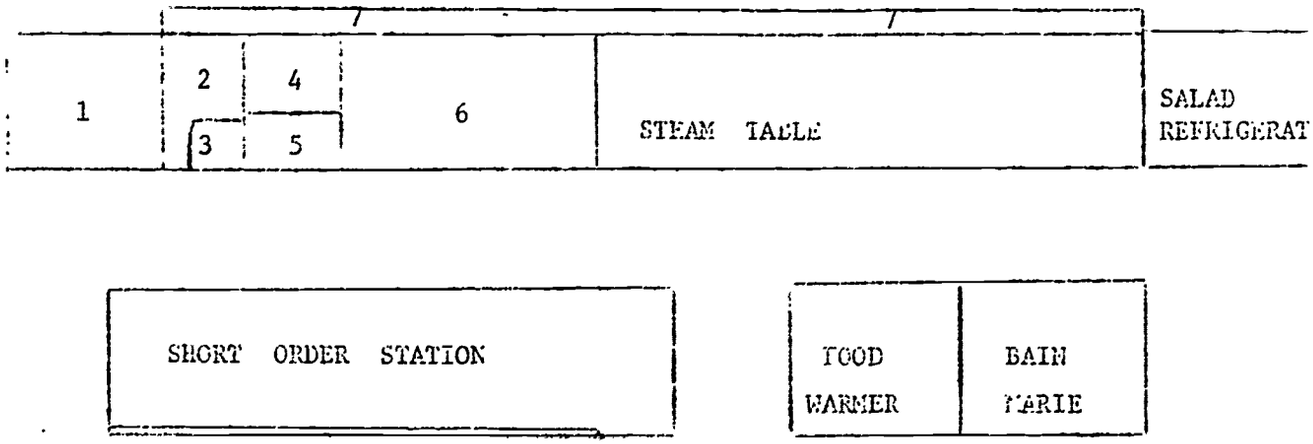
Occasionally, there are sandwiches that can be prepared ahead of the serving period and stored until serving. It is the HFS policy that when lettuce and tomato is part of a sandwich order that it is <u>not</u> placed in the sandwich but beside it on the plate. In this way, the sandwich can be prepared ahead of time without the lettuce and tomato without getting soggy. When an order requests lettuce and tomato, it can be added on the plate (which serves as an attractive garnish) without any extra trouble. Toasted, grilled, and hot sandwiches must be made to order. However, the ingredients can be portioned ahead of serving and, in the case of a hot sandwich, fully prepared and cut with the gravy being added when a request is made. Grilled sandwiches are made by the sandwich man and are grilled by the short order cook. Even in the case of sandwiches that are made to order, the sandwich station worker follows a daily worksheet that estimates how many of each type of sandwich will have to be prepared.

Once the rush period is over, the sandwich man may have to store leftovers properly. This may include breaking down sandwiches that were prepared in advance as well as other sandwich ingredients. Other tasks that this worker may have to perform include slicing breads or buns, slicing tomatoes, onions, and other garnishes in a variety of ways, garnishing sandwiches on plates, slicing sandwiches, trimming bread for various sandwiches, and using good judgement when re-ordering supplies for his station. Like all other workers, the sandwich maker must be able to prepare and recognize a quality product. He must also practice safety and sanitation principles at all times. A heavy rush period should not cause this worker to get sloppy with portioning and preparation nor careless in his use of utensils and equipment.

The morning responsibilities of the sandwich man include preparing all toasts, English muffins, regular muffins, sweet rolls, and coffee cakes that are requested. When an order is placed on the shelf above the sandwich counter, he reads it and prepares the bread item requested (if any), butters it (or places butter on the plate), and if necessary, places the order aside until the short order has prepared the other part of the order. This requires good coordination of the activities of the sandwich man and the short order cook to product items for an order at the same time so that both are of maximum quality.

The HFS SPECIFICS for both parts of this lesson may be quite unlike those found in your work place. Keep this fact in mind as you attempt to complete the HFS questions for Lesson 8. If you question any practices that occur in your place of employment, keep them to yourself until the next class seminar when you can feel free to bring them to light--otherwise, you may be out of a job!

Figure 7 : SANDWICH STATION



KEY

1. Broiler
2. Automatic slicer
3. Portion scale
4. Conveyor-type toaster
5. Pop-up toaster
6. Sandwich work table
7. Raised shelf where finished orders are placed

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HFS EXERCISES

1. On the average, how many different types of sandwiches are served in your establishment each day? List them below.

2. How are sandwich ingredients for salad-type fillings portioned in your work place? Solid-type fillings?

3. What types of sandwiches are mass-produced in your establishment? (List all names)

4. How could the sandwich station in your work place operate more efficiently? (Be specific.)

SKILLS

Sandwich Preparation

49. Use automatic slicer for meats and cheeses

50. Spread butter or mayonnaise on bread

51. Grill a sandwich

52. Slice a sandwich

53. Use an automatic chopper-grinder to cut up ingredients for sandwich fillings

54. Portion solid sandwich fillings

55. Portion salad-type sandwich fillings

RELATED SKILLS: #'s 2, 4, 10, 21 (garnishing sandwiches), 40, 58, 64, 66, 73.

ABOUT LESSON 9

The material in Lesson 9 deals with the various methods used in meat cookery. After you finish this lesson, you should know which cuts of meat should be dry cooked and which should be moist cooked, you must be able to identify cooking methods as either being dry or moist methods, and you should be able to prepare meats using any of these methods.

STUDENT DIRECTIONS

1. Read pages 1-6.
2. Complete the Workbook Exercises on page 7.
3. Check your answers with the Workbook Key on page 8.
4. If you have answered questions incorrectly, re-read the appropriate material and re-answer any questions you missed before going on to #5.
5. Read pages 9-13.
6. Complete the Workbook Exercises on pages 14-16.
7. Check your answers with the Workbook Key on page 17.
8. If you have answered questions incorrectly, re-read the appropriate material and re-answer any questions you missed before going on to #9.
9. Read the HFS SPECIFICS on pages 18 and 19.
10. Answer the HFS questions on pages 20 and 21.
11. On page 22 you will find a list of SKILLS that pertain to this lesson. Follow the procedure for checking off SKILLS.
12. You have now completed Lesson 9. If you still feel that you do not understand any part of this lesson, consult with a classmate, a fellow worker, the establishment supervisor, or the University instructor about your questions. You will be given a quiz on the material presented in this lesson during the next class seminar.

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MEATS I

A. General Meat Cookery

Before beginning a lengthy discussion of the various methods of meat cookery, it is useful to gain a general understanding of WHY meats are cooked. There are two generally accepted reasons for cooking meats: (1) to kill certain micro-organisms that are naturally associated with raw meats; (2) to make the meat more palatable. Along with these, you, the meat cook, should keep in mind three additional ideas: using methods of meat cookery to (1) conserve the maximum food value; (2) add eye appeal; and (3) still keep in mind the cost of these meats.

When meats are cooked, there are specific noticeable effects that result. The color of some meats change from red to brown or gray. The meat becomes firmer, and there is definite shrinkage from loss of moisture through evaporation, chemical, and physical change.

Broadly speaking, there are two ways to cook meat--(1) by dry heat and (2) by moist heat. Dry heat is usually used for more tender cuts and moist heat methods for less tender cuts. Dry heat methods and moist heat methods differ in that the latter depends upon cooking with liquid (moisture) or steam surrounding the meat. Examples of dry heat methods are roasting, baking, and broiling. Variations of moist heat methods are braising, braising, steaming, stewing, simmering, poaching, and frying.

Another important consideration beside method of cooking is the cooking temperature. A lower temperature generally means smaller cooking loss, more juicy meat, and more uniformity of the cooked product. Low temperature cooking, however, requires more time in the process to achieve the desired degree of doneness. This can easily dry out the product due to prolonged exposure. In selecting a cooking temperature, the following factors are involved:

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(1) the total weight of the cut and its surface area; (2) the time allowed for cooking; (3) the composition of the meat (fat or lean); (4) type of meat (beef, veal, pork, etc.); and (5) the presence or absence of bone in the cut of meat. Another consideration is whether the meat is fresh or frozen. Generally, meat that is frozen will be taken from the freezer and refrigerated for about 24 hours before it is to be cooked. (This depends upon the size of the item--a whole turkey may take a few days to thaw). During this period, the meat thaws sufficiently and can be treated as fresh meat. It is possible to cook a frozen piece of meat, but the temperature must be low enough to ensure that the meat cooks all the way through before it burns or becomes overcooked on the surface.

Generally, how a cut of meat is prepared (either by dry or moist cooking methods) depends upon where it comes from in the animal. Cuts from the loin and rib areas are most frequently cooked by dry heat methods, although cuts from the chuck, rump, and round areas may be roasted. Most cuts from the other areas as well as thinner cuts from the chuck, rump, and round are cooked by moist heat methods. Recipes will give further more specific instructions for cooking various cuts of meat.

B. Roasting Meat

We will define the term roasting (or baking) as cooking foods in an uncovered utensil with no liquid added. Roasting is done in an oven. There are a variety of types of ovens; in your workbook, make a list of the various types of ovens in the establishment in which you work and what types of items are cooked in each. (This may require consultation with the cook.)

In the roasting process, it is sometimes necessary to elevate the product being cooked since juices or fats may collect in the bottom of the pan. If the item is not elevated, the lower part that is surrounded by the liquids may fry or braise, causing excessive loss to the item. Since temperature at the bottom of a roasting pan is always greater than in the oven itself, it is usually necessary to elevate the item being prepared. An exception to this is a bone-in rib roast where the rib ends and chine bone may hold the meat away from the bottom of the pan.

When choosing a pan for roasting, select one that is suited to the size of the roast. If too large a pan is used, the drippings will eventually dry up and burn; one that is too shallow will permit drippings to overflow.

A number of studies have been done regarding when roasts should be salted. Although some sources claimed that salting before cooking increased losses in moisture and a lack of surface browning, others reported that initial browning was slowed down but that the quality of the final product was not affected by this method. It may be wise to delay salting a roast until this browning takes place, or not to salt it at all.

A popular form of seasoning is a combination of chopped celery, carrots, and onions referred to as a "mirepoix" (mēēr´ĕ poy). This mixture may be added either at the beginning of the roasting period or closer to the end, depending upon how long the meat will remain in the oven. Since the purpose of a mirepoix is to add flavor to the drippings, it would be unwise to add it too soon (the vegetables would burn). Other herbs and spices may be put directly into the roast through slits that have been intentionally cut. Although this practice tends to flavor the meat, many juices escape as a result.

In a boned, rolled, roast the cooking time may require an additional five to ten minutes per pound more than one with the bone in. This is explained by the fact that a boned, rolled roast is usually much thicker and it takes more

time for the heat to reach the center so that the roast is thoroughly cooked. A roast that has the bone in also cooks more quickly since the bone transfers heat to the meat. Likewise, a smaller roast cooks in a fraction of the time required to cook a larger one.

As has been previously explained, there are many factors that influence the choice of the roasting temperature. The type of meat, its size, its shape, whether or not it's frozen or fresh, the amount of bone, and the amount of time available before the item is to be served all play a part in this decision. Generally, beef, veal, and lamb should be roasted at 350° F. A larger roast may be cooked, however, at 225° F. Too high a temperature (over 400°) may destroy nutrients, as well as causing excessive shrinkage and loss. The decision of choosing a proper roasting temperature may be one that is greatly facilitated after experience.

There are various ways that one can determine the doneness of meat. One way, and perhaps the most accurate, is by using a meat thermometer. The thermometer is inserted in the middle of the thickest muscle; one must take care not to place the thermometer in fat or against a bone since the reading will not be correct for the meat. Using this method, one usually looks for an internal temperature of 140° F. for a rare roast, 160° F. for a medium roast, and 176° F. for a well done roast. (These temperatures may vary, depending on the establishment or source of information.) The desired internal temperatures for meats other than beef vary. Since pork is always cooked to the well done stage in order to kill trichinae organisms, it is cooked to at least 170° F. This produces the most flavorful product and one free of harmful organisms.