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FOOD RATION AND FOOD SERVICE MANAGEMENT

TASK 65-30

January 1966

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SECTION I

INTRODUCTION

A. PURPOSE OF THE REPORT

This report is submitted in response to Task 65-30 dated 27 May 1965. The purpose of the task was "to provide a basis for improving the organizations and procedures of the Department of Defense in providing the daily ration." (See Exhibit 5)

B. BACKGROUND

On 8 January 1965 LMI accepted Task 65-17. This was a reconnaissance study to provide a basis for a decision by the Department of Defense (DoD) whether full-scale research should be undertaken with a view to improving the organizations and procedures of the DoD in providing the ration. In April 1965 LMI submitted its report covering that reconnaissance effort. The major findings of that report were that existing legislation and Executive Orders do not currently provide a common basis for the establishment and administration of the military ration; that there is inadequate centralized direction being given this program at the Office of Secretary of Defense (OSD) level; that the military departments have different approaches, standards and philosophies which may result in inefficiencies and increased costs and that opportunities exist for system improvements and dollar savings. The reconnaissance study report recommended further study of the entire area and it was this recommendation that led to the study covered in this report.

C. SCOPE

The study covered by this report was directed to the systems, organizations, policies, procedures, control methods, etc., utilized in the base- or garrison-type feeding of the enlisted man within the continental United States. It did not include an examination of overseas subsistence programs. The shipboard feeding program of the Navy was considered but only as it affected or was affected by Navy garrison feeding. The procurement of food items by the Defense Supply Agency (DSA) was not a subject of this report and was studied only to the extent necessary to provide an understanding of the supply of subsistence to the base or installation level. The commissary resale activities of the Services were also not a subject of this report and were examined only where pertinent to the study of troop feeding.

D. STUDY METHOD

LMI was assisted in this study by the University of Maryland. This assistance was sought to ensure technical and professional competence in the nutritional and related aspects of the study.

The study was conducted through personal interviews with responsible personnel at all levels in both Government and industry, by on-site visits to installations and food service facilities of all types in the DoD, by visits to industrial organizations experienced in food service and by analysis of material gathered in the process of the interviews and visits. Exhibit 1 is a list of the agencies, offices, organizations and installations visited during the course of this study.

The cooperation and support that LMI was extended at every level of the DoD during this study was unqualified. The wholehearted assistance of military and civilian personnel is gratefully acknowledged for without the highly professional advice and counsel provided by the dedicated food service personnel of the Armed Forces this report would not have been possible.

SECTION II

SUMMARY

The food service program of the Armed Forces is by far the largest food service program in the United States. According to Institutions Magazine of July 1965 the commercial equivalent of the food service volume of the Armed Forces is 3.6 times greater than that of the largest commercial food service organization (Howard Johnson Co.). The Army program alone is 1.5 times that of the largest commercial organization.

The military food service program is also one of the largest--if not the largest--single continuing programs of the DoD. For CONUS feeding alone the raw food costs approximately $225 million annually and the CONUS food service program employs over 50,000 individuals, military and civilian. It is large not only in dollars and number of individuals devoted to it but also in the number of offices, organizations, activities and installations involved. Within each military department there is food service responsibility in each segment of the Secretariat, practically every area of the departmental staff, each field command headquarters and, certainly, each base, installation or unit. Food service involves command, research and development, fiscal, logistics, medical and personnel responsibilities on an every day basis.

What is the military food service program in the CONUS? It is the feeding of over 8,000 men in a single dining facility; the feeding of 20,000 trainees in over 80 individual mess halls at a single installation; the feeding of small units at alert

and missile sites; the operation of unit messes of various sizes and the operation of consolidated dining facilities to feed the personnel of an entire installation. Food service is feeding the serviceman wherever he may be and whatever he may be doing and under every conceivable type of situation. It means the making available a proper meal for the recruit, the hardened veteran, the desk worker, the flyer. It means the serving of this meal in facilities that may vary from WWI origin to those of the most modern design.

The food service job is big and complex and provides an unremitting management challenge because an error in judgment or mismanagement can produce immediate and serious consequences. The complexity and size also provide opportunity for many different systems and approaches.

That significantly different systems and approaches to the common function of troop feeding exist among the four Services is a finding of this study. Another finding is that the enlisted men and women of all components of the Armed Forces of the U.S. are being well fed regardless of which system or approach is used.

These two findings governed the direction of this study. The questions this report will attempt to answer are: "Do opportunities exist for improvements in the food service program when viewed in its entirety? Are the differences in the separate Service systems causing inefficiencies or increased costs and, if so, can they be resolved to the benefit of DoD as a whole and to the serviceman as an individual without in any way impairing the present favorable end result of the food service programs of all the Services? In short, is there a better way of doing the food service job?"

SECTION III

ORGANIZATION OF THE REPORT

The remainder of this report consists of two sections. The next section (Section IV) describes the major aspects of the four food service programs of the Services as they currently exist. It provides the basis for conclusions reached during the study as to the over-all efficiency of the program and the impact on the program as a whole of the differences which exist. These conclusions and recommendations resulting therefrom are contained and discussed in Section V. The recommendations are in the form of systems recommended for either adoption or test and which are designed to effect improvements over the systems currently in use.

SECTION IV

PRESENT FOOD SERVICE SYSTEM

A. INTRODUCTION

As previously noted, the food service program is large and complex. There is no single DoD system to carry out this program--rather, there are four separate and independent systems. When looked at on an over-all basis the systems appear similar. Each Service has a central policy and management organization, each has food service supervision at command and installation level, each has dedicated and competent personnel to prepare the meals and each has a system for accounting and reporting. However, when looked at in detail it becomes apparent that the actual systems, organizations, policies, procedures and control methods used by the Services to accomplish the common function of troop feeding are substantially different. These differences begin with the legal basis for furnishing the ration and extend in varying degrees to practically every aspect of the subsistence program.

Most of the differences are of long standing and are known to each of the Services. Communication exists among the food service management personnel of the four Services, but the differences exist despite interservice knowledge and communication. This situation is believed to be derived from the fact that food service is regarded as a "command function." The responsibility rests with the unit commander and runs through the command chain to the head of each military

department or the Joint Chiefs of Staff. Mission differences and peculiar feeding problems caused each Service to develop its own approach to the problem of troop feeding.[1] Since these approaches have developed over an extended period of time and have been regarded as effective by the Services, there has been little incentive or motivation to minimize the differences or to develop jointly a common system. This situation exists despite the fact that the garrison-type feeding job of today is practically identical in each of the Services.

This section will discuss very briefly some of the major aspects of the various systems--the legal basis for the ration of each Service, the food service organizations, menu planning, ration allowance computation, mess operations and accounting and reporting. Exhibit 2 is a portrayal in brief chart form of these and additional aspects of the Services' systems. It is believed that a reading of the text of this section and Exhibit 2 will provide a sufficient understanding of the present food services' programs to permit an appraisal of the remainder of the report.

B. LEGAL BASIS FOR THE RATION

1. Army and Air Force

Section 40 of an Act entitled, "An Act to increase the efficiency of the permanent military establishment of the United States," approved February 2, 1901 (31 Stat. 748, 758),

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[1] The fact that the military departments no longer have military missions and that their different systems extend into an operating command such as NORAD does not yet seem to have had an impact on the "command function" doctrine as applied to food service.

authorized the President to "prescribe the kinds and quantities of the component articles of the Army ration...". On 23 November 1932 the President issued Executive Order No. 5952 which established the kind and quantity of the component articles of the Army ration.

This Executive Order listed 39 specific articles of food together with specific quantities of each that would make up the daily ration. (The daily ration is that food required for one man for one day.) Exhibit 3 is a listing of these 39 food articles.

The Executive Order provided that in peacetime organizations would be given dollar credit for the ration computed at the current prices of the 39 articles. This ration was known as the garrison ration. The organization commander was permitted to draw from the finance officer "any excess in value of these articles over the value of the subsistence stores purchased by the organization...". The Executive Order thus became a "costing index" for the ration.

Another provision of the Executive Order was that in time of war or national emergency organizations would draw "rations in kind" and would not be allowed to utilize the cash or ration-savings system. This ration was known as the field ration. The field ration components and substitutes were to be prescribed by the "War Department or the commander of the field forces and will correspond as nearly as practicable with the components of the garrison ration." The Executive Order thus clearly established the authority to vary from the components prescribed both in time of peace and war.

The Army and the Air Force have subsisted under this Executive Order since its promulgation. Both Services went on the field ration during the emergency of WWII and have continued on that ration to this date.

2. Navy and Marine Corps

The first law establishing a ration for the Navy was the Act of 27 March 1794 (1 Stat. 350). This Act established a specific ration by quantity of specific food articles for each day of the week. This ration was changed many times throughout the years. The last basic ration change came in the Act of March 2, 1933 (47 Stat. 1423). The ration provided in that Act is basically the one in effect today. The ration is prescribed in terms of 14 basic food items together with the quantity allowed per item. Exhibit 4 lists the article and authorized amount of the Navy ration.

An important provision of the Navy law is that "any article of the Navy ration may be issued in excess of the authorized quantity if there is an under issue of the same value in other articles." The Navy ration law, as in the case of the Army/Air Force Executive Order, thus becomes a "costing index" and provides for variance from the prescribed articles.

The Navy, effective 1 January 1943, directed shore activities within the continental limits of the United States to subsist on a ration in kind basis. The use of cash at the mess level was discontinued, but a monetary allowance to establish the ration value ceiling was continued. The Navy and Marine Corps have continued this policy to date.

While the approach in both the Navy/Marine Corps Law and the Army/Air Force Executive Order is the same--i.e., a listing of specific foods in specific quantities to establish the ration--it should be noted that major differences exist in the quantities authorized (i.e., 20 oz. of fresh meat for Navy/Marine Corps vs. 18 oz. for Army/Air Force) and the description of the article (i.e., "fresh meat, fish or poultry" for Navy/Marine Corps vs. "2 oz. bacon, 10 oz. beef, 2 oz. chicken, 4 oz. pork" for the Army/Air Force). Such differences in basic authority carry over into differences in determining the cost of the ration that is allowed. These differences and their effect are discussed in paragraph E of this Section.

C. FOOD SERVICE ORGANIZATION

1. Office of the Secretary of Defense

Historically, there has been no single focal point in OSD with a concern about the food service program throughout DoD. ASD (I&L) is concerned with the procurement of food, food service equipment and food service facilities. DDR&E is concerned about food service research and development. The Comptroller is concerned about the financial management aspects of the program. ASD (Manpower) is concerned about the health and welfare of the troops. The General Counsel has had the responsibility for drafting proposed legislation for a Uniform Ration Law (URL). However, there has been no OSD office with any over-all responsibility to set policies and standards for the food service programs of the four Services or even to coordinate the efforts of the interested OSD offices. The impact of OSD on the operations of the Services' food service programs and systems has been negligible.

2. The Services

As contrasted to OSD the military departments have established focal points for the direction of the food service program. While many elements of the individual departmental staffs and secretariats have some form of food service responsibility, the actual direction as to policy and procedure has been given to specific offices; one each in the Army and Air Force Departments and two in the Navy Department. These offices are manned with professional food service personnel who regard themselves as fully responsible for the direction of their Service's food service program. In each case they have a mixture of operational and advisory responsibilities.

In the Department of the Army the responsible staff agency is the Office of Support Services. This office has two people devoted to food service and its chief reports to the Chief of Staff. It has a field agency known as the Army Subsistence Center. This Center, located in Chicago and having 69 people involved in food service, is the heart of the Army food service program from a management point of view. It prepares the menus to be used at all Army installations, it prepares the Army recipes, it works closely with the food industry and the Army R&D facility with respect to food and food service equipment, it establishes the ration allowance for the Army through the master menu, it conducts extensive liaison visits with messing facilities worldwide and it maintains communications with all commands on all matters pertaining to food service.

In the Department of the Navy, the Assistant Chief of the Bureau of Supplies and Accounts for Navy Food Service

Programs is the responsible individual for the Navy, exclusive of the Marine Corps. This individual also commands the Navy Subsistence Office. This Office, located in Washington and consisting of 55 people, is the counterpart of the Army Subsistence Center and performs generally the same functions.

The Subsistence Management Section in the Office of the Quartermaster General is the Marine Corps staff agency responsible for the food service of the Marines. This office, located in Washington and composed of eight individuals, has generally the same responsibilities and performs the same functions as the food service organizations of the other Services.

In the Department of the Air Force, staff responsibility for the food service program rests with the General Support and Services Division of the Office of the Director of Supply and Services. This office reports to the Deputy Chief of Staff, Systems and Logistics. Currently, one individual is involved in the Division for food service. Responsibility for implementation of the food service program has been assigned to the Air Force Logistics Command (AFLC) at Wright-Patterson Air Force Base. At AFLC there are two people directly concerned with food service. These individuals are involved primarily with policy and have delegated much of the procedural and operational aspects to a food services group with similar responsibilities to those of the Navy Subsistence Office and the Army Subsistence Center. This group composed of 22 individuals, is currently assigned to the Middletown Air Materiel Area but is scheduled to relocate to Philadelphia, Pennsylvania, where it will become a tenant activity at the Defense Personnel Supply Center.

Thus, there are four separate food service programs being separately directed by four staffs whose functions and responsibilities are nearly identical. The total number of people making up these staffs approximate 160.

Additional supervisory food service personnel are located at command and installation level. The numbers of such personnel are minimal and rarely exceed a single individual per command or installation.

At the actual messing level the food service organizations consist of mess supervisors, cooks and bakers, meat cutters or butchers, food handlers, mess attendants (KP's), ration issue personnel, storekeepers and accounting and reporting personnel.

In summary, the food service organization of each military department consists of one or more policy element at departmental level, a central management and control agency, supervisory personnel at command and installation headquarters and technicians at the actual feeding sites. All of the organizations are performing the same functions.

D. MENU PLANNING

Menu planning is one of the most significant and critical aspects of the food service program. Menu planning must take into careful consideration all nutritive and dietary aspects of human feeding and, of vital importance, the troop acceptance factor. With the possible exception of the actual food preparation there is no single aspect of the food service program more important to the health and morale of the serviceman. The manner in which this vital problem is handled by each of the Services is described below:

1. Department of the Army

The Army utilizes the concept of the "Master Menu." The Master Menu is prepared monthly by the Joint Army/Air Force Master Menu Board. This Board is composed of representatives of the Army Subsistence Center, AFLC and medical personnel of both Services. Attendance at Board meetings generally include representatives of Navy, Marine Corps, Natick Laboratories and DSA, who participate in standardization actions and new item evaluations.

Monthly menus are prepared by professional dieticians of the Army Subsistence Center. The menu is designed to be a nutritionally adequate diet for temperate climate under average or usual conditions of activity. It contains a listing of each food item to be served at each meal for the entire month. It also includes an issue chart which prescribes the quantity of each food item required for the feeding of each meal to 100 men. This menu is presented to the Joint Board and after final approval by the Board, is issued to every Army and Air Force mess hall.

Since the menu is identical for all installations regardless of location or mission the instructions accompanying the menu state, "Depending upon the activity of the troops, the age of the troops, or the climatic conditions prevailing at the installations, the local medical authority may recommend an increase or decrease to the nutritive level of this menu." Thus, change to the menu at the local level is authorized.

When the Master Menu is received at an Army installation (post, camp or station) it is reviewed by the Installation

Menu Board. This is a Board composed usually of the installation food service officer, a representative of the post surgeon, the commissary officer and the unit mess officers or their representatives. Revisions may be made to reflect troop preferences by substituting items, to change the issue rate based upon local conditions or to accommodate the previously quoted provision on nutrition. Army policy provides that the local surgeon must certify that the menu as adjusted at installation level is nutritionally adequate. Army policy also requires that the cost of the adjusted menu based upon current DSA price lists not exceed the cost of the Master Menu as originally received. Copies of the Installation Menu Board meetings showing the revisions to the Master Menu that were made are required to be forwarded to the Army Subsistence Center. This permits a review of all installation actions throughout the country and provides continuing information to the menu planners as to acceptability of items and similar data essential to maintaining a constantly valid master menu.

The Master Menu as revised by the Installation Menu Board becomes the menu to be used at every mess at the installation. Only very minor changes by mess hall are permitted and these only with the approval of the installation food service officer. The result is almost absolute uniformity of menus at an installation. General uniformity at all Army messes throughout the country exists as the study reflected that very few changes of any significance were made to the Master Menu by Army installations. Consequently, the same menu would be served at any given meal by almost every Army mess hall regardless of its location or the mission of the troops being fed.

2. Department of the Navy

a. Navy

The Navy uses a "locally prepared" menu concept. Under this concept the officer responsible for each mess prepares his own menu. The normal practice is for the Leading Chief assigned to the installation Food Service Department to prepare the menu. This is then reviewed by the food service officer and finally approved by the Commanding Officer.

To assist in the preparation of local menus the Navy Subsistence Officer issues to every facility a suggested 13-week menu. The individual mess officers are free to use this menu in whole or in part. Its use is not mandatory as in the case of the Army/Air Force Master Menu. In the course of the study only one Navy mess indicated that it used the NSO suggested menu as the basis for a local menu. Several mess officers indicated it was used as an "idea" document for special meals or recipes.

In preparing the local menu the mess officer is bound by the dollar limitation of the ration. He is free to utilize any of the food items authorized by the Navy in whatever quantities and frequency he desires as long as he stays within his total monetary allowance as determined by the current ration allowance and the number of personnel fed.

The "locally prepared" menu concept results in completely different menus throughout the Navy. Copies of local menus are not forwarded to higher headquarters. Under the concept the final responsibility rests with the unit commander for the preparation of menus that are nutritionally adequate and that have troop acceptability.

b. Marine Corps

The Marine Corps uses an "installation prepared" menu concept. Each Marine Corps facility has a Base Food Service Officer who chairs a Base Menu Board. This Board is responsible for the development of a menu that will be utilized for all messes assigned to the base. The installation/base commander approves the menu. A copy of each installation's monthly menu is forwarded to Headquarters, U.S. Marine Corps for review.

Headquarters Marine Corps issues a menu that is available to all installations. As in the case of the Navy, this menu--which is on a monthly basis--is suggested only and not mandatory. Headquarters Marine Corps will issue revisions to or will change this monthly menu from time to time. During the course of the study no Marine Corps base indicated it utilized the Marine Corps menu as published. It was, however, being used as a guide in developing the local installation menu.

The Base Menu Board prepares menus without specific regard to monetary allowance. Experience has shown that menus as prepared by the Board will be within the monetary limitation. Each mess must not vary from the menu (except in minor detail) and must remain within the monetary limitation. Thus, each mess supervisor maintains suveillance over the cost of the food he has served under the installation menu and must remain within his total allowance. This allowance, in turn, has a positive bearing on the development of the local menu.

Under this concept of "installation preparation" there exists almost absolute uniformity at an installation, but there is no uniformity among installations.

3. Department of the Air Force

As indicated above the Air Force utilizes the Master Menu concept. Its AFLC representatives have equal voting representation with the Army on the Joint Army/Air Force Menu Board and participate in the preparation of the final menu.

The base food service officer in conjunction with the director of the base medical service and the commissary officer review the Master Menu upon its receipt at the installation. As in the case of the Army, revisions may be made but the cost of the revised menu cannot exceed the cost of the Master Menu. The menu as revised is then utilized by all dining facilities at the installation. (The base surgeon or his representative serves as an advisor to the base food service officer. A medical certification is required only when additional monies are requested when the menu is considered nutritionally inadequate.)

Installation changes are not required to be reported to any agency of the Air Force or to the Joint Master Menu Board. It is not known, as a result, the degree to which Air Force installations are revising the Master Menu. It is believed, however, as a result of the visits made during the study that changes at the local level are greater in number and significance than in the Army. Perhaps one reason for this is the absence of a requirement to forward notice of changes to a higher level. At any rate, the Master Menu is the basic menu used by all Air Force installations and installation changes thereto are applicable at all facilities at that installation. Individual dining facilities, however, have substantial flexibility within the installation menu.

They must draw and utilize the food items prescribed--but they may serve the items in a variety of ways or vary within the issue period (three days) the dates on which the items will be served. This provides for greater flexibility in the use of the Master Menu than is the case in the Army.

(While Air Force bases are not required to report changes made in the Master Menu, the Annual RCS Master Menu Utilization Report does give indication of changes made at base level and any changes made by a significant percentage in this report are considered for changes in the next Annual Food Plan. The results of the Air Force survey are utilized in determining future food plans and master menus.)

In summary, each Service approaches the problem of menu planning in a different manner. At one end of the scale is the Army adhering rigidly to a master menu prepared at a central agency and serving the same menu at every mess throughout the country. At the other end of the scale is the Navy placing the responsibility for menu planning on each unit commander and serving different menus at each mess throughout the country. In between are the Air Force and Marine Corps, with the Air Force closely approximating the Army through its use of the Master Menu but allowing considerably more variance at the installation level and with the Marine Corps requiring uniformity within a base, but no uniformity among bases.

E. RATION ALLOWANCE COMPUTATION

As mentioned previously the Navy Ration Law and the Army/Air Force Executive Order are in effect "costing indexes" and are used to determine the actual monetary allowance of the

authorized rations. Specific quantities of specific food items have been authorized by the Law and Executive Order. The current cost of these items at any one time gives the cost of the ration. The cost of the food items as actually used must be no greater than this ration cost multiplied by the number of personnel fed.

The total monetary allowance available to a mess hall against which food items may be drawn is determined by these two factors--the ration allowance and the number of people fed. Thus, the method by which these two factors are computed is vitally important to both the total cost of the DoD food service program and to the resources available to the individual mess supervisor. Each of the four Services arrives at these two factors in different ways. These different ways are described below and the effects of the manner of computation are discussed in Section V.

1. Department of the Army

The first step used by the Army in preparing the Master Menu is to cost the 39 items contained in the Executive Order. The current DSA price list is used for this purpose. This procedure establishes the current value of the ration. The Master Menu is then prepared ensuring that the cost of the food items contained therein is equal to the previously determined value of the ration. The theory is that if the Master Menu is used exactly as printed its cost will equal the value as authorized by the Executive Order. Thus, the ration value is established for all Army messes by the Master Menu.

When revisions are made to the Master Menu at installation level the cost of the items deleted or reduced in quantity is computed using the current standard DSA price list. The value of these deletions and reductions is the value of the items that may be added to the menu.

With this method of ration allowance computation the basic value is established by the Army Subsistence Office based upon the current cost of the 39 items authorized in the Executive Order. Food item changes are made at installation level within this total value. The Installation Menu Board's meeting minutes will show the cost of the Master Menu and the cost of the revised menu. The local mess hall has no concern as to ration allowance. It makes no computations in this regard. Neither does it concern itself with remaining within an allowance since it draws meal components that have been previously determined to be within the authorized allowance. Its only concern is with how much to draw.

The individual mess hall draws its food items from the installation commissary by complete meals--i.e., it draws a specific number of breakfasts, dinners and suppers. The number of each meal drawn is that number of personnel anticipated by the mess supervisor to be fed at that meal. People actually fed at each meal are counted as they enter the mess hall. This figure is known as the "headcount." If the mess hall drew more meals than the actual headcount it must make up this overage within a ten-day period by underdrawing a like number of the same meal--i.e., breakfast, dinner or supper. If the headcount is greater than the number of meals drawn, the underage is dropped. The mess hall is not permitted to

to overdraw to make up for the underage. Since the headcount determines how much food may be drawn, the importance of the headcount to both the individual mess hall and the total cost of the program can be appreciated.

Since the cost of the items making up breakfast, dinner and supper vary considerably and since the number of personnel eating each meal also varies, the value of the ration has been broken down to reflect an approximation of the cost of each meal. For instance, 40% of the cost of the ration is attributed to the dinner meal, 35% to the supper meal and 25% to the breakfast meal. To get the actual monthly monetary allowance at the installation level, the food service supervisor multiplies the total number of breakfasts served during the month, (as reflected by the total of all messes' headcounts) by 25% of the dollar value of the ration as contained in the installation menu; to this he adds the result of multiplying the number of dinners served by 40% of the ration value; and to this he adds the result of multiplying the number of suppers served by 35% of the ration value. For example, if the installation menu for the month computes to a unit ration cost of $1.10 and the number of breakfasts served during the month are 450,000 the number of dinners served are 600,000 and the number of suppers served are 510,000; the monetary allowance for the installation for the month would be $\lceil(450{,}000) \times (.25)\ (1.10)\rfloor + \lceil(600{,}000) \times (.40)\ (1.10)\rfloor + \lceil(510{,}000) \times (.35)\ (1.10)\rfloor$ or $584,100. The value of the food drawn during the month must not exceed $584,100 if the installation is to be within its ration allowance.

2. Department of the Navy

a. Navy

The ration allowance for all Navy facilities is computed by the Navy Subsistence Office. The initial step in the ration computation is to assign specific food items to the 14 commodity groups contained in the Navy Ration Law. The amount of each specific food item within each group is determined on the basis of the frequency with which that item has appeared in typical Navy menus in the past. Thus, the 20 oz. of fresh meat allowed by the Navy Ration Law is broken down into beef, pork, poultry, etc., and further into specific cuts of each type meat. The cost of the 20 oz. allowed is then the total of the cost of the various items used by the NSO to make up the meat commodity group. The ration value is computed each quarter and remains the same throughout the quarter.

The ration value as computed by NSO is forwarded to all Navy messes and becomes the basic factor in the mess' monetary allowance. Accompanying the ration value is an NSO standard price list which will be used by all facilities during the quarter to determine the cost of food drawn for feeding. As in the case of the ration value this standard price list remains the same throughout the quarter. This standard price list varies in some aspects from the DSA price list.

The allowance for each mess is determined by multiplying the headcount by the ration value. The Navy uses the same meal factors as the Army (25%, 40% and 35%) in arriving at the total value of the ration. The mess must

maintain daily and cumulative data as to allowance and value of food drawn since it may draw food items as desired. The total value of food issued by the mess may not exceed the value of the total allowance for the quarter if it is to be within the allowance prescribed by NSO.

b. Marine Corps

The ration allowance for the Marine Corps is computed on the basis of the current DSA cost of specific quantities of 47 food items. These 47 food items compose the 14 basic food groups of the Navy Ration Law and equal the specific quantities authorized for each group by the Law. The items and quantities thereof are contained in a list developed by Hq. Marine Corps on the basis of usage experience. This list is used by all Marine bases for the local computation of the ration value. The list is infrequently changed either as to item or quantity of a specific item.

At the beginning of each month each Marine Corps base annotates the list with the current DSA price for each item. The unit costs are extended and totaled to give the value of the ration for that month. A copy of Computed Unit Ration Value (NAVMC 580-SD) is required to be attached to the monthly Subsistence Operational Analysis Report by each activity and forwarded to Headquarters, Marine Corps. These ration values are audited each month to assure compliance with regulations.

As in the other Services, the total monetary allowance is computed by applying the meal factor--the Marine Corps uses the same factors as the Army and Navy--to the ration value and the headcount. Reports are maintained in each mess

as to the daily and cumulative allowance and the cost of food items drawn. The total value of the food drawn may not exceed the computed total monetary allowance if the mess is to remain within its authorized allowance.

3. Department of the Air Force

The basic ration allowance for the Air Force is initially established in exactly the same manner as that described for the Army--i.e., the Master Menu represents the value of the authorized ration and revisions within the value are made at installation level.

Each dining facility is informed on a monthly basis by the base food supervisor of the value of the ration. Each facility is responsible for ensuring that it stays within this allowance as it draws its supplies from the commissary. Since the Air Force, unlike the Army, does not require its dining facilities to draw meal components in precise consonance with the menu, each dining facility is held responsible for remaining within the total monetary allowance and must maintain records to reflect its position.

The position of each facility with respect to its monetary allowance is computed daily and is maintained on a cumulative basis during the month by the individual responsible for the facility. A headcount is taken to establish the number of personnel fed at each meal. In the Air Force the headcount is accomplished by requiring each individual to sign a register as he enters the dining hall. The headcount figure is multiplied by the factor of the ration applicable to that meal. In the Air Force the current factors are 28% for breakfast, 37% for dinner and 35% for supper. By adding

the totals for each meal, a daily allowance is derived. The total of the daily allowances is the monthly dollar allowance for the facility. The value of the food items drawn during the month must be within this total if the facility is to be within its ration allowance.

Since the Air Force mess supervisor may draw food items as he desires, there is no problem with respect to over or under issues as exists in the Army. On the other hand, the individual Air Force dining facility must maintain records as to value of food drawn vs. value of allowance whereas the Army mess hall keeps no records in this regard.

As a matter of interest, the value of the ration allowance for an Air Force base having the same conditions described above for an Army base (i.e., a ration value of $1.10 and 450,000 for breakfast, 600,000 for lunch and 510,000 for dinner) would be $580,510. This is $3,590 less than the allowance authorized by the Army to feed the same menu to the same number of men and is directly attributable to the difference in the factors applied by the two Services to the ration for each meal.

In summary, the computation of the value of the ration is accomplished in different ways by the four Services. In addition, the value of the ration and hence, the total cost of the food service program is directly influenced by many factors--the choice of food items or quantities of specific items that are used as the pricing basis by Navy and Marine Corps; the content of the Master Menu as developed by the Army/Air Force Joint Master Menu Board and the changes made by Installation Boards; the accuracy of the headcount and the

percentages that are applied to the ration to accommodate the different costs of breakfast, dinner and supper.

F. FOOD SERVICE OPERATIONS

This paragraph will briefly discuss mess hall operations and will touch upon the allied activities of bakeries and meat cutting plants.

Mess hall operations consist of meal planning; ordering of ration components; preparing meals; serving meals; cleaning up during and after meals; maintaining records; reporting of supply and financial data; and determining needs and initiating requests for food service equipment. These functions are common to every mess hall or dining facility of all the Services. The manners in which these functions are accomplished, however, vary to a considerable degree both within each Service and among the Services.

No clear-cut pattern exists as to mess hall operation. Every possible different type of operation was observed during the course of this study--even at those installations which appeared to have similar missions. For instance, installations of each Service having basic or technical training missions were visited. Mess operations at these installations including feeding by a large number of small unit messes; a single or small number of large consolidated messes; messes operated completely by the military; messes with military cooks and food handlers but with civilian contract mess attendants; messes with military mess attendants and a combination of military and civil service cooks and food handlers and messes with the complete operation on a civilian contract basis.

Other differences were apparent--many of which were directly related to service concepts as to the total food service operation. As previously noted, the Army mess supervisor has practically no responsibility for menu preparation. The Navy mess supervisor has almost complete responsibility for that function. The Army mess supervisor draws rations by number of meals, holds no inventory and keeps a minimum of records. The supervisors of the other Services draw rations by detailed "shopping lists," maintain significant inventories and have varying degrees of accounting and reporting responsibilities. These differences in concepts and operations result in differences in the manning required both in the messes and at other activities within food service, such as ration breakdown, commissary and accounting and reporting offices.

Differences also exist in feeding practices. Where there is greater flexibility in what may be served there is usually greater flexibility in what is served. Where food items may be drawn as required and desired there is usually greater variety. For instance, "express" or "short order lines" are popular in the Navy and to a somewhat lesser extent in the Air Force. These lines serve a limited menu, usually consisting of hamburgers, hot dogs, cold sandwiches, etc. The serviceman has a choice of using this line or taking the full menu provided in the regular line. This type of operation is not possible with the Army concept of mess operation--at least to the extent possible in the other Services.

Other food service operations for which no pattern exist are bakeries, pastry shops and meat cutting plants. The Army and Marine Corps and at least a segment of one Air Force

command operate meat cutting plants; the Navy and most Air Force commands do not, utilizing pre-cut meat instead of carcass. Some meat cutting plants are wholly militarily manned, others are a mixture of civilian and military and still others are completely civilian. Some installations of the Services operate central bread baking and/or pastry shops while others require the individual messes to prepare their own pastry and procure bread from civilian sources. The same mixture of civilian and military situations exists as it does in the case of meat cutting plants.

In summary, despite the common functions involved in food service at the mess hall level there are differences in concept and operation both among the Services and within the individual Services. Some of these differences are significant and follow no consistent or apparent pattern.

G. ACCOUNTING AND REPORTING

As previously noted, the Army/Air Force Executive Order and the Navy/Marine Corps Ration Law establish the ration that is authorized. These documents are costing indexes and provide a ration ceiling in dollars that cannot be exceeded. Because of this requirement to conduct a program within ceilings imposed by law, because of its large dollar value and because of the peculiar and complex nature of this program, special accounting and reporting systems have been developed for the food service program of each Service. Since the system each Service utilizes to manage its food service program is extremely detailed and, in some cases, rather complex, no attempt will be made to describe each of them individually. Instead, the major features which appear to exist in all of

the four individual systems will be outlined as a means of providing an understanding of how significant is this aspect in the food service program. (Accounting for and reporting of food service equipment is similar to that for any other capital equipment, machinery, tools, operating supplies, etc., and will not be covered herein. It should be noted, however, that food service equipment accountability and reporting is an added responsibility of the mess supervisor.)

The common feature of the various systems is the establishment of the value of food authorized and the value of food consumed. This rather simply stated feature, however, is a gross understatement of the paperwork required and the time and attention given to accounting and reporting by the mess supervisor. To arrive at the value of food authorized and consumed and to record data deemed essential to the total operation a great number of different records are maintained. This recording requires substantial management attention at mess hall, installation, command and policy levels and consumes the time of a considerable number of food service personnel.

The first step in the accounting procedure is the establishment of the ration value. This procedure was discussed in paragraph E of this Section. Next is the food requisitioning--accomplished by some form of a written requisition prepared by the mess supervisor and forwarded to the commissary officer. For all except the Army, the requisitioned items are picked up on the inventory of the individual mess hall. Complete inventory records are maintained showing issue, receipts and on-hand figures for each of the several hundred food items. The next step is for the cook to requisition

food items from the mess hall storeroom. These issues are dropped from the mess hall inventory and picked up on the cook's worksheet. The same type of procedure is followed if items are drawn separately from the bakery, pastry shop or meat cutting plant. Thus, there is established a formal requisitioning and accounting procedure to establish what food items are consumed. The costing of these food items establishes the cost of the consumed food.

As indicated previously, the number of people fed is established by a headcount. This headcount is complicated by the necessity to record personnel by Service and to record separately all those who are permitted to eat in the mess hall, but who must pay cash (officers, civilians, enlisted men on commuted rations). Consequently, it is necessary in every mess hall to have a register to permit the recording of this information together with personnel and facilities to collect cash payments.

There are many additional complicating features. For instance, there are several different types of rations a mess hall may be required to issue and each of these must be accounted for separately (in-flight rations, operational rations, alert rations, sandwich meals, etc.). Also, the value of excess milk and dairy products which is available for feeding is in some Services separately computed and recorded as used.

The accounting and reporting begins at the mess hall level. In the Navy, each activity forwards a consolidated report directly to the Navy Subsistence Office. In the other Services, the reports are consolidated at installation level. They are then forwarded through channels--or in some cases direct--to the

policy office of the Service concerned. Here the reports are reviewed, any required action of corrective nature initiated and data developed for use in budget formulation, etc.

During the course of the study several mess halls were asked to provide copies of all forms used in the management of their operations. The forms supplied included both those required at local level and those required at command and policy level. At a base whose operation is considered to be typical 27 separate reports were being used. At installations where in-flight kitchens were being operated, an additional five forms were required. These forms and reports were in addition to those required in other mess administration--i.e., normal non-food supply, facility reports, menu board meetings, etc.

The number of personnel employed in the accounting and reporting activities of the food service program could be determined only by a mess hall by mess hall and installation by installation survey. However, the number is substantial and conservatively estimated at 1,500 for CONUS. At mess hall level there is a minimum of one person (in addition to head-count and cashier personnel) devoting full time to accounting and reporting. At installation level there may be as many as five. Additional personnel are found at command and policy level with full-time duties in the accounting and reporting areas.

In summary, accounting and reporting in the food service program is extensive. Each Service has prescribed a different system. Accounting and reporting is a full-time job for a considerable number of people. The end result of the

very detailed accounting is summary data as to the cost of food consumed in relation to the cost of food authorized.

SECTION V

CONCLUSIONS AND RECOMMENDATIONS

A. RECAPITULATION OF MAJOR RECOMMENDATIONS

Following is a recapitulation of the major recommendations of this report. Each recommendation together with additional minor recommendations and with the conclusions upon which they are based is discussed in detail immediately following this recapitulation.

1. The Army/Air Force Executive Order and the Navy Ration Law be replaced by legislation that uniformly prescribes a single ration for the Armed Forces but the DoD defer proposing such legislation until policy direction of troop feeding has been established in OSD and a year or two of experience has been gained under such an arrangement. To carry out this recommendation the following actions should be taken:

a. The function of prescribing the Army and Air Force ration be delegated by the President to the Secretary of Defense.

b. The Secretary of Defense prescribe the Army and Air Force ration in language which parallels as closely as possible the present language of the statute covering the Navy/Marine Corps ration.

c. The Secretary of Defense assume responsibility for prescribing policies and standards with respect to the basic ration for the Navy and Marine Corps as well as for the Army and Air Force.

2. There be established by the Secretary of Defense an organizational focal point within OSD to establish uniform food service policies and standards and the Services exercise command and management responsibilities within the policies and standards established by this organization.

3. A single method of ration allowance computation be established for all Services which is realistic and which minimizes the possibility of error. To carry out this recommendation, the following actions should be taken:

a. The establishment of a single ration value by the OSD food service organization.

b. The use of a "credit card" or "charge plate" type of device to record mess hall headcount.

c. The establishment of uniform percentages to reflect the meal cost distribution with such percentages based upon actual cost experience. The percentages recommended based upon current costs are breakfast 22%, dinner 41%, and supper 37%. Studies should be made periodically to validate these percentages.

4. The concept of planning and pricing menus and establishing the value of the ration on a regional basis be studied in depth.

5. Responsibility for central menu planning and recipe service be centralized but each Service be permitted to direct the extent to which the central menu will be used at installation or mess hall level.

6. Increased attention be devoted to nutritional aspects of military feeding.

7. DoD test the central food preparation concept and conduct studies relative to the total cost of utilizing prepared and processed foods.

8. Extensive food acceptability evaluation tests be conducted under actual troop feeding conditions and the results thereof be taken into consideration in menu and meal planning.

9. Military personnel in the food service program in the CONUS be replaced where feasible by direct hire or contract civilian personnel wherever there is no military essentiality justification.

10. Personnel policies in the food service area be reviewed by the Services to ensure that equality of opportunity--promotional and otherwise--exists as compared with other career fields and that formal food service school training be expanded to more nearly meet the requirements for trained personnel.

11. A single DoD food service R&D program be developed and monitored by the OSD food service organization and the specific responsibilities of each R&D facility/organization be reviewed by OSD to ensure elimination of duplication, adequate coverage and effective coordination.

12. Research in the area of nutrition as related to peculiar military problems be vigorously supported.

13. DoD testing of new food items and feeding systems proposed by industry be performed on a continuous and extensive basis.

14. DoD consolidate its food facility capabilities into one organization and this organization have design and layout responsibilities for any new facilities or any modification programs.

15. All food service equipment which is determined to be "maintenance free" be procured centrally through the Defense Supply Agency and all other items be authorized for local procurement.

16. Upon the establishment of a uniform ration authorization and a single method of determining the ration allowance a single system of food service reporting and accounting be developed.

B. LEGAL BASIS FOR THE RATION

1. Conclusion

The present Army/Air Force Executive Order and the Navy Ration Law have three major flaws, the result of which is that the current legal bases for the ration are not effective in accomplishing their objective.

The first flaw is that the Army/Air Force Executive Order and the Navy Ration Law result in unjustifiable differences among the Services. Examination of the Rations as authorized by these two documents (Exhibits 3 and 4) discloses that they are not the same. The degree to which they differ is discussed in other sections of this report. At this point it is important only to note that differences do exist in the rations authorized for different segments of the Armed Forces.

No justification for the fact that an enlisted man of one Service is authorized a ration different from that authorized an enlisted man of another Service was disclosed during the course of the study. Enlisted men of all Services authorized to subsist at other than government facilities receive the same commuted ration--the amount of money received in lieu of rations

in kind in the mess hall. Enlisted men of all Services receive the same number of dollars while on leave instead of being issued rations in kind in the mess hall. Yet, while on duty and subsisting in the mess hall enlisted men of different Services are authorized rations of different value.

This inequitable situation is illustrated in another manner. There exists today a considerable amount of cross-servicing in the subsistence area. When a Navy enlisted man because of his assignment is required to eat in an Army mess hall, he is not receiving the ration to which he is entitled--and neither is the Army enlisted man eating in the Navy mess receiving the ration to which he is entitled.

That inequities do exist in the authorized ration and that these inequities are unjustified have long been recognized as defects in the subsistence program and as impediments to the development of a more effective food service program.

The second flaw is that the Army/Air Force Executive Order and the Navy Ration Law are not effective bases for establishing the value of the authorized ration. In paragraph E, Section IV, it was noted that the value of the authorized ration is a major factor in the determination of the total monetary allowance available for feeding the serviceman and a major factor in establishing the funding requirements that will be carried in the annual budget of DoD. The Services use the Executive Order and the Ration Law as the bases for computing the value of the ration--but neither of the descriptions is effective for this purpose.

One is too rigid and the other is too flexible.[1]

The Army/Air Force Executive Order prescribes the exact food items and the exact quantities of each that will be costed to arrive at the value of the ration. No variance from the items or quantities thereof is permitted in the determination of the ration value. This approach ensures that the value of the ration will constantly be computed on the same basis and will reflect the cost changes in the basic food items of the authorized ration. If the food items contained in the list are constantly representative of their basic food groups and are properly weighted and if changes in their costs accurately reflect food group cost changes, then the listing--and the Executive Order--is an effective cost index. This, however, does not appear to be the case.

To illustrate, the Executive Order listing contains six items in the vegetable group. Four of these items are canned and two are fresh. This may have been a valid representation in 1932--the date of the Executive Order--but it is not today. In 1935 the per capita food consumption of canned vegetables was more than 30 times that of frozen vegetables but in 1963 it was only three times. Yet, the Executive Order for ration authorization computation makes no recognition of the substantial use of frozen vegetables.

The impact of this situation can be illustrated by the following example: The Executive Order lists canned corn as

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[1]The "flexibility" referred to here is that which exists when one Service administers a policy or standard independent of the other Services. The Navy Ration Law would not be regarded as "too flexible" if applicable to all Services and its manner of application standardized.

one of the six vegetable items. The cost of canned corn is currently $2.96 per 100 servings and this is the figure that goes into the ration value computation. The Army annual food plan for 1966 indicates that frozen corn will be served 44 times and canned corn 50 times. Each time the frozen corn is served it will cost $3.80 per 100 servings--or 84¢ more than the cost of canned corn. Thus, each time the frozen corn is served the value of other items on the menu will have to be reduced by 84¢ for 100 servings to compensate for the higher cost of the "non-specified" frozen corn item. For CONUS feeding this represents over $100,000 of other reductions that must take place during the year to enable the serving of frozen rather than canned corn.

The listing should have some relationship to the type of items that comprise the menu as actually served. The present listing fails in this respect in many areas. For instance, the Executive Order listing contains prunes as one of the five fruit items. In 1966 prunes will be served 12 times for a yearly total of .42 pounds per man while bananas which are not on the list, will be served 129 times for a yearly total of 24.62 pounds per man.

As contrasted to the rigidity of the Executive Order for costing purposes, the Navy Ration Law is extremely flexible in its application as a costing base. As previously noted, the Navy Ration Law prescribes the authorized ration by specific quantities of broad food groups. The manners in which the Navy and Marine Corps compute the value of their ration were outlined in paragraph E of Section IV. The fact that each Service arrives at a different value is the first indication of the latitude and flexibility that exist in the Navy Ration Law for the determination of the ration value.

Under the Marine Corps and Navy systems the value of the ration is determined by what food items and the amounts thereof are selected by the food service personnel charged with ration value computation. Significant change in the value of the ration can be effected by simply changing the components that make up the basic food groups of the authorized ration. To illustrate, the components currently making up the meat group for the Marine Corps ration computation are bacon, (slab, smoked), ham (smoked), beef (fresh, carcass), chicken (fresh) and pork loin (fresh bladeless). The number of ounces specified for each of these items adds up to the authorized meat allowance in the Navy Ration Law. For 100 men, the current Marine Corps computation includes 70 pounds of beef and 17 pounds of pork loin. Cost of beef is about 43¢ per pound and the cost of pork loin is 58¢ per pound. To raise the value of the ration it would only be necessary to raise the amount of pork loin used in the computation and decrease the amount of beef. This, then, would increase the monetary allowance for every mess hall in the Marine Corps. Such a change is within the discretion of the Marine Corps. Since the actual menu is made up without any regard for the components used in the ration value computation such a change would have no effect on the food items actually served--except that in the case cited more expensive items or greater amounts would be possible because of the increased ration value. The value of the ration and hence, the cost of subsistence served in the Marine Corps could be reduced--again within the discretion of the Corps--by increasing the amount of the low cost items and decreasing the cost of the high cost items selected as components of the food groups authorized by

the Navy Law or by changing the items that are used to emphasize those of low cost.

To illustrate the magnitude of the inherent flexibility of ration computation with this system several different listings of components and quantities were prepared. An increase or decrease in the value of the ration of at least 10% was achieved by lists which differed in composition but which represented "balanced diets." For the CONUS feeding of the Marine Corps such a change in ration value could affect the cost of Marine Corps feeding by over $2,000,000 in one year in either direction. Far greater differences could be created if the most or least costly item of each food group was used as the sole basis for the ration computation.

(Note: The above illustrations and comments are not meant to imply in any way that the items selected by the Marine Corps are selected upon any basis other than experience and usage factors. The only purpose of the illustrations is to demonstrate the flexibility that exists in the Ration Law.)

Exactly the same condition as described above exists in the Navy. Substantial changes in the value of the authorized ration can be achieved by a change in the items making up the costing base. Such changes are within the discretion of the Navy.

It is concluded from the foregoing that neither the Executive Order nor the Navy Ration Law is effective in its use as a costing index and that correction of this flaw is needed.

The third major flaw exists primarily in the Executive Order--but is present to a limited degree in the Navy Ration Law. This flaw is that the introduction of new items, new

feeding concepts and other innovations in the food service program are discouraged.

Food technology advances are constantly making new products available. These products offer many and varied advantages to the consumer--better quality, greater acceptability, less preparation, greater stability, decreased shipping and storage requirements and other logistical benefits. These advantages, however, are usually reflected in increased initial cost to the consumer.

It is not possible under the Executive Order to take credit for the value of the benefits of a new product as an offset to the items' increased cost. Since the ration value is based upon raw food costs the labor savings, improved quality or logistics benefits of new or improved products can be realized only at the expense of other items of the ration. This discourages their use even though substantial over-all savings to the Government would accrue. Provisions should exist for the use of more costly food items if compensating savings or benefits can be shown. This would facilitate the use of new products and feeding concepts without a total increase in the cost of the over-all food service program.

The foregoing discussion highlights what are considered to be the major flaws in the present legal bases for the rations of the Armed Forces. It is to the correction of these flaws that the following recommendations are directed.

2. Recommendations

The Army/Air Force Executive Order and the Navy Ration Law be replaced by legislation that uniformly prescribes a single ration for the Armed Forces, but the DoD defer proposing

such legislation until policy direction of troop feeding has been established in OSD and a year or two of experience has been gained under such an arrangement.

The flaws of the present legal bases as discussed above are of long standing. Many suggestions over the past fifteen years have been made for their correction. These suggestions, none of which has been implemented, have included new ration laws, amendments to the Executive Order and substantial organizational changes. The fact that they have not been implemented is a strong indication of the complexity of the problem and of the need for a sound, workable and proven basis prior to embarking on a specific legislative program.

The fact that ration legislation is essential cannot be argued. The enlisted man is clearly entitled to having his subsistence needs assured by law. It may well be, however, that the most desirable type of legislation will take a form substantially different than the existing legal bases which describe the ration in terms of authorized food items or food groups. What is needed now is a means of gaining experience under conditions that are free of the existing flaws so that decisions may be made regarding the form the uniform legislation will take. The following is a plan designed to provide such experience:

(a) Under the present law (10 U.S.C. 4561 and 10 U.S.C. 9561) the function of prescribing the Army ration and the Air Force ration are vested in the President. It is recommended that this Presidential function be delegated by the President to the Secretary of Defense.

(b) It is recommended that the Secretary of Defense prescribe the Army and Air Force ration in language which

parallels as closely as possible the present language of the statute covering the Navy/Marine Corps ration. Thus, by executive action, there would be brought into being a situation in which a consistent legal basis would be established regarding the daily ration of the Armed Forces.

(c) It is recommended that the Secretary of Defense assume responsibility for prescribing policies and standards with respect to the basic ration for the Navy and Marine Corps as well as for the Army and Air Force. Thus, by OSD action differences in ration allowance, methods of computation of monetary values and other policy aspects of ration administration could be eliminated.

Under this plan it is contemplated that a DoD organizational focal point would be established to carry out the Secretary of Defense's responsibilities in this area. This organizational focal point is discussed in greater detail in following paragraphs. Suffice to note, at this point, that the prime responsibility of this organization would be to develop policies and standards of equal application to all Services that would eliminate the problems that exist as a result of the present legal bases. As this responsibility is discharged and food service operations are conducted under central policy direction and under similar conditions the DoD could develop the experience necessary to factually determine the legislation best suited to an optimum subsistence program for the Armed Forces.

C. ORGANIZATION

1. Conclusion

The DoD food service program suffers from a lack of centralized policy direction even though the food service organizations of the four Services are individually effective and efficient.

It is difficult to identify any major DoD program other than food service, which consists of identical functions being performed by all the Services but which does not have a significant degree of OSD policy direction. The multitude of differences which exist in food service administration and operation can be attributed primarily to this lack of central policy direction--and these differences result in a total system that is less effective than it could be.

As noted previously the problem of CONUS feeding is nearly identical for all four Services. There appears to be no real basis for the widely divergent views as to the major aspects of troop feeding that exist or for the different operational systems that have developed. It does not seem likely that four different approaches to menu planning are equally effective. If boneless beef is the most economical type of beef to be used why is it not used throughout the Armed Forces? Is there not a "best" method of performing the headcount function, and if so why is it not uniformly used in all the services? How can different approaches to the question of costing individual meals be justified? Is it effective to have separate recipe services for CONUS feeding? If contract mess attendants have been proven to be in the best interests of one service for CONUS feeding, why is it not prescribed for all?

The foregoing typifies the thinking that led to the conclusion that the DoD food service program suffers from a lack of centralized policy direction. It is believed that substantial improvements and some dollar savings could be realized if central policy direction existed. Both improvements and savings would result if only by the adoption of all Services of those concepts, policies and systems that could be proved the most effective.

2. Recommendations

There be established by the Secretary of Defense an organizational focal point within OSD to establish uniform food service policies and standards, and the Services exercise command and management responsibilities within the policies and standards established by this organization.

This recommendation was discussed with personnel at all levels in all the Services. The need for an OSD focal point was agreed to by all. The only problems that were seen were the location, composition and responsibilities of the organization.

With respect to location of this OSD focal point, it would appear that there are several alternatives. Since the ASD (Manpower) and the ASD (I&L) both have heavy responsibilities in the food service program either could be selected for the focal point responsibility. Alternatively, a joint assignment of responsibility could be considered which would resemble the arrangements made with respect to the DoD Standardization Program in which two offices (DDR&E and I&L) have a strong continuing interest. At any rate, location does not appear to be a problem.

Neither would it appear that the composition of the policy-making organization is a problem. The numbers and types of personnel would depend upon the responsibilities assigned to the organization. The type of manning--permanent or committee or as required--would also depend upon responsibilities. Under any OSD personnel and organizational arrangements the necessary staff work could be accomplished by the personnel currently existing in the central subsistence offices of the four Services. Since the numbers of personnel assigned to the Service offices are not large, no significant savings in personnel are expected through the establishment of an OSD focal point and the consolidation of some functions. However, there will certainly be no need for an increase in the total number.

The responsibilities to be assigned to the OSD office would appear to be clear. Initially, the office would discharge those responsibilities in connection with the previous recommendations--i.e., the establishment of uniform policies and standards concerning the ration. Other assignments to be made on an early basis would be in the areas of monetary allowance computations, menu and recipe development and coordination, food service equipment specifications, food industry liaison and uniform reporting, accounting and budgetary matters. There are additional areas to be considered by the central policy office, such as research and development coordination and guidance on food service training and personnel programs. Their selection will be a natural consequence of developing initial basic policy. It is suggested that the ultimate composition and the ultimate assignment of responsibilities be arrived at through a process of evolution and with full Service participation.

The establishment of the OSD focal point would not significantly affect the Service organizations below the current policy-making level. Since the actual feeding--the command and management aspects of food service--will remain a responsibility of Service commanders, the present field organizations will be required. However, as previously noted very few personnel are involved in the food service staffs of field commands and they do not duplicate each other.

(One additional major benefit of an identifiable OSD food service organization is the increased importance that will be attached to the program and the resultant impetus this will give to improving food service as a career field--the importance of which is discussed in later paragraphs.)

D. RATION COMPUTATION

1. Conclusion

Opportunities exist for significant improvements in the methods by which the ration allowance is computed.

It has been noted in this report that computation of the ration monetary allowance consists of three factors--the basic value as determined by the constraints of the Executive Order and the Ration Law; the number of personnel fed as determined by the headcount, and the percentages used in costing each meal within the daily ration value. The means by which each Service and the individual mess halls compute the monetary allowance through the application of these three factors have also been noted. It is believed that opportunities exist in each of the areas for improvement.

The unilateral flexibility for establishing the basic ration value that exists in the Services can result in basic differences that are not justified and which can unnecessarily increase the cost of the food service program or which can result in the serviceman receiving less than that to which he is basically entitled. Examples of how significantly the ration value can be changed as a result of the absence of guidelines have been given in a previous section of this report. The improvement contemplated here would be that which would result from the application of uniform guidelines and the establishment of a basic ration value that is consistently determined and applied alike to all the Services.

With respect to the number of personnel fed factor it is believed that opportunities exist for significant error in the existing headcount procedure. Many different systems were observed during the course of the study--the manual counting of personnel as they entered the mess hall, the use of turnstiles to record the number and the requirement for each man to personally sign in as he entered. Each of these systems poses certain problems but most importantly none is free of the possibility of error--and the cost of the error can be substantial. With a ration value of $1.20 a 1% error in headcount would amount to an error of approximately $2.5 millions per year for just CONUS feeding. If the error was counting one man out of a hundred too many, the $2.5 millions would be spent unnessarily--i.e., rations in that value would be drawn over what the actual value should have been. If the error was on the low side the troops would be denied $2.5 millions of rations to which they were entitled.

Another reason for insuring an accurate headcount is that the number of people fed determines the cost to the Government of contract feeding. (Contract feeding is discussed in paragraph J of this Section.) The average cost of FY-64 contract feeding was approximately 29¢ per meal served. A one per cent (1%) error on the high side in the headcount for the contract feeding of 100,000 men over a year's time would amount to an overpayment of over $300,000. The importance of headcount accuracy in contract feeding situations thus becomes apparent.

The distribution of the ration value among the three meals according to the cost of each meal is essential for proper utilization of the ration dollar. The cost of each meal is substantially different and the number of personnel fed varies from breakfast to dinner to supper. The manner in which this distribution is made should be consistent among the Services and should be as closely related to actual meal costs as possible. What can happen when each Service is free to select its percentages of ration value distribution was previously shown in paragraph E, Section IV. It is this condition that should be corrected.

2. Recommendations

It is recommended that a single method of ration allowance computation be established for all the Services which is realistic and which minimizes the possibility of error.

The steps involved in this recommendation are:

(a) The establishment of a single ration value by the OSD food service organization. This ration value would

be the national value for all Services. It would be adjusted by regions as described in paragraph E of this Section.

(b) The use of a "credit card" or "charge plate" type of device to record the headcount.

(c) The establishment of uniform percentages to reflect the meal cost distribution with such percentages based upon actual cost experience.

It has been previously recommended that one or two years' experience be gained under centralized policy direction of the food service program prior to requesting uniform ration legislation. This was to permit study of what would constitute the best possible type of legislation after operating under uniform policy and guidelines. One of the major aspects of such a study would be the basis for determining the ration value.

It has been noted that neither of the present systems seems to be completely effective. One system is too rigid and the other is too flexible. What is contemplated is that the OSD policy organization would establish a uniform ration value based upon consideration of current values. The uniform ration value would then be periodically changed to reflect the costs associated with continuously providing an equivalent ration.

The recommendation concerning the headcount device contemplate the use of a punched mess card that could be inserted by each individual into a device which would cause a mechanism to punch a data card with certain information. Either an individual's ID card could be used for this purpose

by punching the required data on it or a mess card specifically designed for this purpose could be used. (At the present time most installations use mess cards so this recommendation does not involve any additional card requirements.)

The use of such a card would be similar to credit cards or charge plates used throughout business today. Whatever information required by the subsistence accounting system--name, unit, branch of service, ration authorization--could be coded on the card. The data from the machine would then be available for various accounting purposes and audit.

The types of machines envisioned by this recommendation are commercially available and of relatively minor cost--especially at the volume that would be required by the Armed Forces. The value of the concept is the accuracy that will be obtained, the susceptibility to audit and the ease and speed of operation. The concept should be adopted as soon as possible for all messes utilizing contract feeding.

A study has been made of the Army/Air Force Master Menu to determine the actual costs of breakfast, dinner and supper.[1] The months of July, August, September and December, 1965, were selected for this study. The results showed that the average cost of breakfast during the period was 22.68% of the total daily raw food cost; that dinner was 40.44% and that supper was 36.88%. This study also disclosed that the meals had high and low percentage costs as follows:

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[1]The study was made by the University of Maryland staff using the University's computer facilities. The study included the cost of every item prescribed by the menu except milk and table items such as catsup, jelly and seasoning.

	High	Low
Breakfast	28.47	17.53
Dinner	55.56	27.98
Supper	49.42	26.62

Based upon this study, it is recommended that each Service adopt the following percentages for meal cost distribution: Breakfast 22%, Dinner 41% and Supper 37%. It is further recommended that similar studies be made every few years to validate these findings.

E. PRICING

1. Conclusion

Dollar savings may be realized by establishing the ration value and by planning and pricing menus on a regional basis rather than on a national basis.

As noted previously, the value of the ration is established by each Service on the basis of a national price list. The value is the same for every mess of each individual Military Service--regardless of the fact that the cost of the items upon which the ration was computed varies from region to region. It is believed that the objective of national pricing--the ensuring of equity throughout the country--can be achieved and the additional benefit of lower total program costs may be realized through the use of regional pricing.

DSA procures on the basis of lowest delivered costs with the delivery points being supply points or consumer locations (posts, camps, stations, bases, etc.). These delivered costs are averaged to establish a single national

price for each item. This average price is the one upon which the ration value is computed. (The Navy uses a "standard" price rather than the DSA national price in its ration value computations but the principle of averaging and using a single price rather than regional prices is the same.) This average price is also the actual cost to every post, camp, base or station regardless of location. Thus, a can of peas "costs" a mess in Maine exactly what it "costs" a mess in California even though the price actually paid by DSA for peas delivered to a mess in Maine may be substantially different than the price paid for peas delivered in California.

The savings contemplated in this paragraph are those that may be achieved by serving those food items in each region that represent the lowest delivered costs for that region and which maintain equitable acceptability and nutritional levels. In other words, to achieve minimum costs without degrading the acceptability and nutritional value of a diet the meals in any area or region should to the extent possible--and within established minimum and maximum levels of individual item servings for any given period of time--consist of those items that were procured by DSA at the lowest cost in relation to those of higher cost in the same food groups where item acceptability and health factors are equal or better.

To illustrate the principle and benefits of regional pricing and planning, it is assumed that the Master Menu calls for a serving of canned peas. It is also assumed for purposes of this illustration that canned peas and canned green beans are equally acceptable and have equal nutritional and other health qualities. Further, it is assumed that DSA procurement

costs closely relate to the annual average prices as reported by the United States Department of Agriculture for the various regions of the United States.

U.S.D.A. "Agriculture Prices, August 1964" reported #303 can price for peas in the New England Region as 19.6 cents and in the Pacific Region as 20.9 cents. The prices for green beans were 17.5 cents in the New England Region and 23.3 cents in the Pacific Region. Peas were cheaper than beans in the Pacific Region while beans were cheaper than peas in the New England Region.

Under the present system, these prices (and those of all other regions) would be averaged to determine the national price. In this illustration the national price for peas would be 20.25 cents and for green beans it would be 20.4 cents. The cost of serving peas to 200,000 troops in these two areas would be $8,140.50. (The cost of a #10 can is about 6.7 times the cost of a #303 can. It takes three #10 cans for 100 servings. The cost is, therefore, 6,000 #10 cans @ average price of 20.25 cents per #303 can x 6.7.)

If, instead of using a national menu and national pricing, use was made of regional menus and regional pricing, savings could be achieved by the simple substitution in the New England Region of canned green beans for canned peas. The actual cost of serving the 200,000 troops would now be $7,718.40. (For the New England Region the cost of canned green beans would be 3,000 #10 cans @ actual price of 17.5 cents per #303 can x 6.7 or $3,517.50. For the Pacific Region the cost of canned peas would be 3,000 #10 cans @ actual price of 20.9 cents per #303 can x 6.7 or $4,200.90.)

An actual savings of $422.10 or 5.2% results from this single substitution of one vegetable for another for only 100,000 servings in one region. A similar savings would be realized in the Pacific Region if peas were to be substituted for beans when beans were carried on the Master Menu. While it is recognized that there are limits to the number of servings of any one item and that nutritional needs will further limit the extent of use of lowest cost food items, the potential savings of this concept may be large. This is especially true when it is considered that savings can be realized even though price savings of individual items may be small. The volume is so great that differences of only fractions of pennies in costs of items may result in sizeable savings where appropriate use of lower cost items is made.

The concept of using more of lower cost items and less of higher cost items throughout the various regions of CONUS is believed feasible and capable of implementation. It might lead to substantially lower total program costs without any degradation of the adequacy or acceptability of the diet made available to every enlisted man regardless of location.

Net tangible savings under this concept have not been identified. Time for this study did not permit an examination of the impact--cost and otherwise--on commodity management and menu preparation. It may be that the workload and resources necessary to effectively control such a system would outweigh the product cost savings. This fact can be determined, however, only through additional study directed to food procurement, storage, distribution, item acceptability, item substitutability and multiple menu preparation. It is a study that should be conducted as soon as possible.

2. Recommendation

It is recommended that the concept of planning and pricing menus and establishing the ration value on a regional basis be studied in depth.

The purpose of this study would be to determine the comparative costs of regional pricing and regional menus vs national pricing and a national menu--to include all costs associated with procurement, stock management and distribution--and to determine the feasibility and extent of low cost item substitution from both troop acceptability and nutrition aspects.

The concept itself contemplates the following steps:

(a) Construct a menu that using national prices is within the dollar constraint of the ration as established by the central OSD subsistence focal point and that is of the highest possible level of acceptability and nutrition. This step is identical to that currently being done in the establishment of the Army/Air Force Master Menu.

(b) Cost the national menu using regional prices.

(c) Examine the national menu region by region to determine where acceptable item substitutions may be made that have a better price ratio and will serve to lower the menu cost in each region.

(d) Prepare individual regional menus that reflect acceptable, but lower cost substitutions.

(e) Cost the regional menus using regional prices to determine the individual ration value for each region.

The result would be regional menus of varying dollar value but which would all be of equivalent acceptability and nutritional value. The total cost of all the regional menus would be less than the total cost of the single national menu.

The cost of each regional menu would establish the ration value for every mess within that region. Those messes not using the regional menu would be free to develop any acceptable and nutritionally adequate menu as long as they remained within the regional value. Those messes using the regional menu, but desiring to make substitutions could do so as long as the substitutions did not exceed the cost of the regional menu. In other words, there would be no change from the flexibility currently existing within or among the Services.

There would be four major aspects to the recommended study. First, acceptability of various food items would have to be established to include the minimum and maximum number of times an item should be served during any given period of time. A program to accomplish this is discussed in paragraph I of this Section. This phase would require the services of personnel competent in the areas of nutrition, food processing, statistical design and data analysis.

Secondly, a program would have to be developed which would utilize the acceptability information and the data as to regional costs to establish appropriate regional menus. It is believed that this program exceeds the capability of the existing subsistence offices and could only be accomplished by a computer system. The work in this area would require the services of personnel competent in the areas of nutrition, food processing, economics, linear programming and computer

programming. The costs of such a program on a continuing basis would have to be developed.

Third, data would have to be developed concerning the procurement and associated costs involved in the application of regional menus. The final step would be an analysis of all factors and costs to the degree necessary to arrive at a decision as to adoption of the regional pricing concept.

While the steps required to accomplish the plan are not simple, the benefits appear to be such as to warrant the time and effort. In addition to the possibility of savings from this computer system of menu preparation on a regional basis, it would be feasible at very little additional cost to program menus for special needs--e.g., a specially prepared menu for recruits in training with high caloric needs, a special menu for "desk" personnel with low caloric needs, a special menu for female personnel, etc. Also, in the case of mobilization, a computer program could be quickly adjusted to determine a menu which most efficiently utilizes scarce resources (transportation facilities, storage facilities or a particular nutritional component). This approach is not new to DoD. It is essentially similar to the type of programs developed by Dantzig[1] and others during WWII where transportation linear programs were widely used.

It should be noted that a logical extension of this kind of program would be to consider the <u>total</u> feeding program and not just similar components, as was the case in the

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[1] Dantzig, G.B., Crowles Commission Monograph 13, John Wiley & Sons, 1951.

illustration. The total acceptability and the total cost of the ration would be considered. It may be that it is in this area that savings well in excess of those of the illustration will be found.

F. MENU PLANNING AND RECIPE SERVICES

1. Conclusion

There is no basis other than ration value authorization differences for separate Service preparation of menus and recipes and efficiencies would result from the centralization of these functions.

There are currently three separate central menus and two separate recipe services maintained by the military departments. The functions and responsibilities involved in these operations are identical. The output while not identical is similar. The personnel utilized by each Service to perform these functions are highly skilled professionals of identical background and areas of competence.

No reason could be found during the course of this study for separate Service menu planning other than the difference in the basic ration allowance authorized the different Services. If, as recommended previously, the ration allowance is uniformly established there would be no reason for separate menu planning.

No compelling reason was found during the course of the study for separate recipe services. Each Military Service now maintains almost 1,000 recipes. Most of these recipes are almost identical. An examination of Master Menus revealed that only a small number of these recipes are in more than

rare use. (This is somewhat comparable to a study by American Machine and Foundry Company which revealed that 80% of all orders in automated restaurants consists of only 18 recipes.) While there is believed to be no need for mission-oriented recipes, any essential special Service recipes could be easily maintained under a centralized recipe service. (The Services have contemplated the consolidation of the recipes and currently use the same recipes in the standard "B" ration for the Armed Forces.)

Several efficiencies would be gained by the centralization of menu planning and recipe service. One would be the reduction in the number of highly skilled personnel required to perform these operations. Second would be the savings in costs associated with the printing and use of one menu and one recipe service instead of several. Third is the upgrading of both the menu and the recipes that would result from the concentration of these services in a central organization.

2. Recommendation

It is recommended that the responsibility for central menu planning and recipe service be centralized but that each Service be permitted to direct the extent to which the central menu will be used at installation or mess hall level.

This recommendation envisions the location of the central menu planning and recipe service responsibilities in the OSD organization for food service policy direction and is in consonance with other recommendations concerning uniform legal bases, organization, ration allowance computations, pricing, new feeding concepts and nutritional policy. Personnel to carry out the menu and recipe responsibilities would be drawn from those currently performing these functions in the Services.

The practicability of this recommendation is demonstrated by the current use of a single CONUS menu by the Army and the Air Force. The extension to all Services once a single ration value is established would be capable of immediate implementation and would be accomplished without any adverse consequences to any of the Services. The centralization of the recipe service is almost a fact right now. Considerable coordination already exists and certain minor differences are being eliminated. All that remains in this area is complete integration and the establishment of a single recipe service.

It is recognized that different philosophies exist in the Services with respect to the use of a central or master menu. There are advantages and disadvantages inherent in the master menu concept. These have a different degree of importance and application to each Service and consequently, it is recommended that the Services be permitted to determine how each will use the centrally prepared menu.

The advantages of a master menu for CONUS operations are:

(a) When it is adhered to there is no opportunity for a nutritionally inadequate meal to be offered to the enlisted man.

(b) It will provide a desired degree of variety in menus and avoid the possibility of repeating the same meals too frequently.

(c) It will be prepared by experts.

(d) It will ensure the full use of the authorized ration value.

(e) It will permit mess supervisors to devote all of their time to mess management and food preparation.

(f) It will simplify accounting and reporting.

The disadvantages of a master menu for CONUS operations are:

(a) It denies experience in menu planning to food service personnel.

(b) It removes a significant element of mess management from the mess supervisor.

(c) It fails to recognize local preferences in food items. (This disadvantage would be eliminated, however, by the use of regional menus tailored to item availability and acceptability. Such regional menus are discussed under paragraph E of this Section.)

As indicated above, different degrees of importance are attached to these advantages and disadvantages by each of the Services. For example, because of item availability and storage problems, it is impossible to utilize a master menu aboard ship other than as a general guide. It is necessary under these conditions to prepare menus locally and on a ship-by-ship basis. The Navy, therefore, regards the Master Menu disadvantage of denying training in menu preparation as far more serious than any benefits that might accrue from CONUS master menu use. Menu planning in CONUS operations is regarded as essential training for Navy career food service personnel. It is because of this type of mission-oriented problems facing each Service that the decision as to the extent of use of the Master Menu should continue to be that of

each individual Service. It is believed, however, that once the Master Menu preparation is centralized and becomes available to all the Services on a uniform basis, considerable use will be made of it by installations currently under an installation or locally prepared menu operation.

G. NUTRITIONAL POLICY

1. Conclusion

While there is no problem with respect to the nutritional adequacy of the military ration, there is a continuing need for research in nutrition so that optimal nutritional health for every individual in the Military Service may be achieved.

There is no problem today with respect to the general nutritional adequacy of the military ration, especially the ration prescribed by master and cyclical menus. The food called for by these menus and as generally prepared is considered to provide average daily nutrient intakes equal to or in excess of the dietary allowances recommended by the National Research Council (NRC). While it is possible in some circumstances for a ration to be provided that would not be nutritionally adequate (due to excessive loss of nutrients in preparation or poor menu selection), a more likely possibility is that certain individuals may select for themselves a diet which is not nutritionally complete even when a nutritionally adequate diet is available to them. The most prevalent form of malnutrition among military personnel (as it is among civilians) is obesity due to excessive caloric intake.

The nutritional adequacy of the Army/Air Force Master Menu is demonstrated by Table 1. This table shows the calculated levels of certain nutrients supplied for an eight-month period. These nutrient levels clearly meet or exceed the allowances of the Food and Nutrition Board, NRC or those published in AR 40-5. While similar data are not available for Navy and Marine Corps locally prepared menus, examination of typical menus at messes throughout the country during the course of the study established that they appeared to provide adequate amounts of these nutrients.

Despite the marked progress which has been made in nutrition and related sciences, much is still unknown about food and its role in health and disease. To be sure, overt nutritional deficiency lesions are not a matter of concern, and those few which may exist are probably due to improper food selections of the individual or marked variation in nutritional needs. Nonetheless, food and health must be regarded as inseparable terms when one considers the role of food on the metabolic integrity of each individual. There is a pressing need for more research in military nutrition so that we may more nearly achieve optimal nutritional health and efficiency of performance for every individual in the Military Service. The lack of a nutritional deficiency does not assure an optimal nutritional state. Unfortunately very little is known about the changes in nutrient needs due to environmental stresses and changes in proportions of gross nutrients in the diet.

The presence of medical corps officers, qualified in nutrition, on the Joint Army/Air Force Master Menu Board and

TABLE 1. ANALYSIS OF NUTRITIONAL ADEQUACY OF ARMY-AIR FORCE MASTER MENUS[1]

Nutrient	Nutrients contained in Master Menu								
	Aug. 1965	Sept. 1965	Oct. 1965	Nov. 1965	Dec. 1965	Feb. 1966	Mar. 1966	Apr. 1966	Minimums (AR 40-5)
Calories	4,000.	4,000.	4,000.	4,200.	4,000.	3,900.	4,000.	3,900.	3,500.[2]
Protein, gm.	123.	123.	127.	133.	126.	121.	128.	123.	100.
Fat, gm.	184	183.	187.	189.	186.	183.	181.	181.	--
Calcium, mgm.	978.	973.	1,074.	1,038.	1,045.	1,040.	1,047.	1,151.	700.
Iron, mgm.	24.7	23.6	25.1	24.1	25.1	23.1	23.8	23.8	--
Vitamin A, I.U.	13,670.	13,559.	12,936.	13,442.	14,021.	13,133.	14,026.	13,675.	5,000.[3]
Thiamin, mgm.	1.9	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.7
Riboflavin, mgm.	2.8	2.8	2.8	2.8	2.8	2.7	2.8	2.7	2.8
Niacin, mgm.	27.	27.	28.	27.	27.	26.	27.	26.	16.
Vitamin C, mgm.	143.	140.	117.	123.	126.	116.	116.	116.	75.

[1]Data from D.H.A.S. 1,338.1, May, 1964.

[2]Energy content reduced from 3,600 to 3,500 calories by agreement of Master Menu Board.

[3]One-third must be pre-formed Vitamin A.

the inclusion of nutrition as an active area of preventive medicine under the Surgeon General (Army) is a reflection of medical nutrition concern. In the Navy, however, preventive medicine aspects of food are largely restricted to sanitation, with the nutritional concern and menu preparation delegated to the mess or supply officer. The Army and Air Force require medical approval of each master menu, and Base Menu Boards of the Army, Marine Corps and Air Force include medical personnel. No medical approval is required for Navy locally prepared menus.

The NRC allowances of critical nutrients needed by military age groups are the best information available at present for nutritional guidance, but they are not complete. Allowances are not given for several nutrients shown to be needed by man (such as pyridoxine, folic acid, vitamin B_{12}, pantothenic acid, vitamin E, several trace minerals, etc.). Furthermore, the needs for many nutrients are known to vary greatly from one individual to another. Moreover, the nutritional needs of the same individual vary with differences in activity, ambient temperature, other stresses, and nature of the diet itself. Losses or changes in availability of nutrients during preparation and cooking also may have marked effects. Preparation and cooking losses of vitamin C in certain foods may exceed 90%. These changes in nutritive values of the food are quantified for only a limited range of conditions. The need for vitamin C may increase to three times the NRC allowance for most rapid wound healing, for instance.

Though undernutrition is not found in recognizable states generally in the military, malnutrition in the form of overnutrition is not uncommon. Obesity and changes in body composition with or without marked changes in body

weight is the most commonly identified form of malnutrition, and indeed most studies have shown excessive increases in body weight of military personnel.

Caloric levels of the rations offered completely explain this phenomonen. Even considering preparation and plate waste at a generous level, total calories provided and consumed are substantially beyond requirements. Based on such studies the nutrition and research laboratory of the U.S. Army has recommended a reduction in caloric intake level of the menus. Apparently, the main reason for not acting on this recommendation was that a ration lower in energy would not be acceptable by those few men accustomed to a heavy food intake or by personnel of certain units having missions which require a caloric intake above average.

2. Recommendations

It is recommended that increased attention be devoted to nutritional aspects of military feeding.

The abundance of foodstuffs in the United States cannot be taken as evidence of the existence of an optimum diet. Even the provision of a ration on the basis of a menu formulated on the usual dietetic guidelines may be inadequate unless careful attention is paid to the important relationship between the type and amount of ration components and the energy and nutrient requirements of the man in uniform.

The Armed Forces need men who can perform at maximum efficiency for long intervals and food, carefully selected and prepared, is a primary prerequisite for such efficiency and endurance. Recognition of the separate and supporting roles of food science and of nutrition science in the feeding of

Armed Forces personnel, both in garrison and in the field, is an essential step in the attainment of optimum nutrition and optimal performance. Guidance by experts in nutrition science can contribute importantly to the assurance of nutritional health and fitness in Armed Forces personnel subjected to the varying requirements of military responsibilities.

In line with the foregoing the recommendation envisions action in three areas. These areas are:

(a) The assurance, to the extent possible, of the nutritional adequacy of all military menus.

(b) The tailoring of caloric intake more nearly to caloric need so as to reduce the problem of obesity.

(c) The study of those factors which influence nutrient needs.

(d) The maintenance of continued medical concern and research dealing with the effect of nutrient intakes on physiological integrity and function of body tissues which determine the nutritional health and well being of the individual.

With respect to the nutritional adequacy of the military menu it is recommended that the OSD organization for policy direction of the food service program include professional nutritionists and dieticians. It would be the responsibility of such personnel to approve the national and regional menus as to nutritional adequacy. It would also be the responsibility of such personnel to monitor the medical and nutritional research programs and nutritional studies. A second recommendation in this area is that menus

as finally prepared at installation or mess hall level be approved by locally stationed medical personnel.

With respect to the problem of obesity it is recommended that the following steps be taken:

(a) Nutritional education of the individual concerning diet, exercise and health.

(b) Use of unit menus designed to consider differences in unit missions. (Units might be placed in energy need categories for light, moderate, and heavy activity by the medical officer. The menu, in turn, would determine the food issues. Such menus would have the same cost, but contain less high caloric food (fats), fewer fried foods, more baked, roasted, or boiled foods, and more low calorie foods (salads, fruits, etc.). The possibility of developing such menus by a computer system was noted in paragraph E of this Section.

(c) Extensive use of salad lines, which is already common.

(d) Provide three cooked vegetables at main meals so that each person can find one he likes.

(e) Use of plateware of slightly smaller capacity, so that less food is taken in the line. (This also should reduce plate waste.)

(f) Cut bread slices in half and require men to take seconds from serving dishes on each table. (This should also reduce plate waste.)

(g) Encourage sufficient regular exercise to maintain improved body composition and fitness.

The other nutritional areas which require constant surveillance and study include:

(a) The significance of amount and type of fat consumed on heart disease.

(b) The possible relationship of cholesterol and heart disease.

(c) Dietary aspects of diabetes.

(d) Effect of diet on physical endurance.

(e) Role of diet on body heat production and adaptation to changed temperature environments.

(f) Effect and timing of diet of food consumption on mental alertness and productivity.

(g) Need for special nutrient intakes for maximum resistance to stress (wound healing, temperature, prolonged fatigue, resistance to specific disease). Cold temperatures and high altitudes require special study--including special food preparation requirements for high altitudes.

(h) Nutritional toxicology such as aflatoxic contamination and liver cancer.

(i) Role of trace minerals in dental caries.

(j) Effect of nutrient imbalances on metabolic stress and need for other nutrients.

(k) General sanitation and wholesomeness of foods.

(l) Effect of macronutrient composition of diet on nutrient requirements and physiciological efficiency.

Some of the foregoing are of special importance in order to ensure optimal nutritional health and fitness in Armed Forces personnel subjected to peculiar stresses and varying requirements of military responsibilities. Others may be equally important for civilian groups, but should be given attention by trained personnel.

H. NEW FEEDING CONCEPTS

1. Conclusion

There have been significant changes in feeding concepts developed by the civilian food service industry that may have application to military feeding in CONUS.

The concepts for CONUS type military feeding are the same today as they were prior to World War II. The same situation is not the case with at least one segment of the civilian food service industry. In this segment the concept of feeding has been revolutionized and the lessons learned may have application to the military. The result could be substantial savings and improved operations.

The segment of the civilian food industry referred to above is that of the chain restaurants. The new concept is to serve at each restaurant or serving point food items which have been prepared in whole or in part in a central commissary using large scale processing methods. The central food preparing operation provides fully prepared food at the proper temperature either in individual portions or in cafeteria style trays to any number of separate dining facilities within a radius of ten miles. Practically no food preparation or cook personnel are required at the serving point or individual restaurant under this concept.

At least four major restaurant chains are already functioning in the manner described above or are rapidly moving in that direction. The food service equipment industry has developed the necessary line of equipment to ship that food centrally prepared at the appropriate temperature (hot or cold) to the various restaurant outlets.

It is also possible for a central kitchen to be established which would prepare "ready to eat" items on a still larger scale and freeze the items in individual portions or tray size containers. The frozen items could then be transported to feeding outlets within a wide radius of the central kitchen. At the feeding point the only operations that would be required would be heating and serving.

One of the most significant advantages of this concept is the reduction of labor costs. Industry experience indicates that the percentage of total costs assigned to raw material costs vary from 18 to 40 percent. The great bulk of the remaining costs in a food service operation are labor costs. Industry's objective is to reduce such labor costs to the absolute minimum. According to industry estimates, the proper use of the central kitchen concept could reduce labor requirements by approximately one-third.

Perhaps a more significant advantage of the concept than labor and portion control savings is the opportunity for quality improvement. The major reason given by industry for moving in the direction of centrally prepared food is the means it provides of solving the problem of the unavailability of qualified, well-trained personnel. There is an extreme shortage of qualified cooks and food service personnel and the turn-over is great. This problem, not unlike the one existing in the military, is a reflection generally of the image of food service as a career, working conditions, opportunities for advancement, pay, etc. This problem's impact on civilian food service operations is severe and has prompted various moves to any innovation that reduces the need for trained personnel.

There appears to be no question but that foods centrally prepared are or can be equal or better in quality than foods prepared from raw materials at the individual dining facility. Opportunities for controlling quantity, acceptability and nutrition of individual meals are maximized.

Another step has been taken by industry to reduce its labor costs and problems. This is to make extensive use of prepared foods. One company has gone so far as to develop a completely automated system for producing finished menu items from raw materials on individual orders placed into a computer.

The initial deterrent to the use of prepared processed foods is their higher initial costs. This deterrent is especially present in the military with its emphasis upon raw food costs rather than total costs. However, the savings in labor required for preparation should be a significant factor in the decision as to the use of prepared foods. For example, the cost of dehydrated potatoes compared to the cost of raw potatoes per serving of mashed potatoes is higher. However, the labor costs involved in the preparation of the raw potatoes would have to be less than 35¢ an hour for the <u>total</u> cost of providing mashed potatoes from raw potatoes to be equal to the cost of mashed potatoes made from dehydrated potatoes.[1] It would appear, therefore, that a real opportunity exists to reduce <u>total</u> costs by increasing the use of prepared, processed foods, even though this would be accomplished at a higher initial procurement cost.

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[1]Kramer, A. Food Processing. Voice of America Lecture Series 19:1963.

Industry has had considerable experience in the use of new concepts and innovations in its efforts to reduce its labor costs. The military has the same problems as industry and the same objectives. It is believed the military could benefit substantially by carefully studying industry experience and adopting those concepts and procedures proved to be advantageous.

2. Recommendation

It is recommended that the DoD test the central food preparation concept and conduct studies relative to the total cost of utilizing prepared and processed foods.

The central food preparation test is recommended to be conducted as follows:

(a) Select a post, camp or station having at least 20 individual food preparation and dining facilities (mess halls).

(b) Divide the 20 mess halls into two groups. The first group of 10 would continue to operate in accordance with the present procedures--i.e., each mess hall individually preparing its own meals. The second group of 10 mess halls would serve food prepared in a central kitchen and shipped ready to eat to each mess hall in the group. The central kitchen could be one of the 10 mess halls in the second group or a completely separate facility.

(c) Maintain detailed accounting of all costs of all aspects of the food service program for each group. These costs would include raw food costs, labor costs, accounting and reporting costs, facility costs, etc.

(d) Appraise the adequacy of the food preparation and the acceptability of the meals and components thereof as served.

(e) Determine the results of the tests and make judgments as to the applicability of the central food preparation concept to CONUS military feeding.

From on-site evaluations made during the course of this study it has been concluded that a test as outlined above is feasible. It is essential that test conditions be such as to avoid the possibility of preconceived bias influencing the test results. It is also important that the base selected be one in which such a study can be done with objectivity so that the conduct of the test would not be prejudiced in any way by other activities being conducted at the base. Funds and personnel to conduct the test should be separately provided. It may be desirable to have the test conducted or designed, directed and/or monitored by an agency outside the DoD.

As a natural extension of this recommended test it may be found desirable to test the concept of "ready to heat and serve" processed meals. This would consist of a central facility preparing and freezing meals and the subsequent delivery of such meals to dining locations. It is possible that this test would consider vastly increased ranges of feeding--i.e., all installations within the Military District of Washington. An individual mess at each military facility within MDW could be selected to test such meals. As in the previously described test all costs and all aspects of food service would be appraised. The two tests could be run at the same time or sequentially.

The use of prepared foods could also be tested during the central food preparation test. Test conditions could be

established which would permit evaluation of the prepared foods with raw foods as to total costs and acceptability. The advantage in testing concurrently with the central food preparation test would be the availability and use of the highly trained personnel that would be available.

I. EVALUATION OF FOOD ACCEPTABILITY

1. Conclusion

Because of its importance in menu planning, morale and control of waste, food item acceptability should be determined on as factual basis as possible.

The individual Services[1] and the food research activities[2] have accomplished and continue to conduct evaluations of the acceptability of the food items served in CONUS and overseas feeding operations. As a rule these evaluations are based on questionnaires where the respondents give an opinion, oral or written, of their liking or disliking an item without actually testing it under ordinary dining facilities. Such data may be misleading.[3] This is especially true since in many instances standard food items procured by the military are purchased on the basis of grades and standards used by the trade where undue emphasis is placed upon appearance of the raw food, rather than its acceptability and yield

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[1] Air Force Evaluation of Dehydrated, Scrambled Egg Mix at Clark AB, Philippines.

[2] Kamen, Joseph M., Survey of Food Preferences of U. S. Soldiers--1963, U. S. Army Natick Laboratories.

[3] Kramer, A., and Twigg, B.A., Fundamentals of Quality Control for the Food Industry, (Westport, Connecticut), (The Avi Publishing Co., Ind., 1962.)

as the food prepared for consumption.[1] What is needed is a careful and realistic evaluation of the acceptability of food items on an actual performance basis.

2. Recommendation

It is recommended that extensive food acceptability evaluation tests be conducted under actual troop feeding conditions and that the results thereof be taken into consideration in menu and meal planning.

The tests as recommended here should be conducted concurrently with the tests to evaluate the concept of central food preparation. The central food preparation recommendation included food acceptability evaluation under both concepts of feeding and this evaluation could easily be expanded to include item acceptability. This would consist of a professional evaluation of item acceptability under actual feeding conditions.

Important usage could be made of the data generated during such tests. In addition to providing necessary input to national, regional and special menu planning, the tests could materially improve the utilization of food.

One major problem which downgrades the ration is the food loss from kitchen to plate waste of prepared foods. Army plate waste averages around 8-10%, ranging from 5-15%, based on direct surveys by the Medical Research and Nutrition Laboratory. Waste of prepared food not served will average about 5%, and for certain food items, both plate and kitchen

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[1] Fox, M. The Use of Objective Tests in Determining the Quality of Fresh Fruit and Vegetables--Thesis, University of Maryland, 1965.

waste can be much higher. The total loss, therefore, may be from 15 to 20% of the prepared food. Obviously, the ration could be materially improved if half--or any significant portion--of this could be saved and used for items which have a high degree of troop acceptability.

An immediate opportunity to achieve some of this improvement is to prepare individual food items only in quantities that will be consumed. Preparation of items in excess of this quantity means that less of the ration allowance can be used for items that will be consumed. Consequently, acceptability evaluation results will be of great importance to meal planners--as differentiated from menu planners--and should be extensively used.

One fact related to this issue became apparent during the study of Army feeding practices. Since the Master Menu is rigidly followed and savings in unused food items cannot be applied to the purchase of other items not on the menu, there is little or no incentive to prepare lesser quantities of the menu items even when it is known that such lesser quantities are a far more accurate reflection of troop acceptability and what will actually be consumed. What is needed is a real incentive to reduce waste by preparing not the quantity nationally called for by the Master Menu but the quantity experience dictates will actually be consumed in any individual mess.

It is recommended, therefore, that a form of "ration savings" be authorized Army messes drawing rations in strict accordance with the Master Menu.[1] Each mess should be permitted to reduce the amount of any item to the extent of the known usage of that item in that mess. The value of the item reduction should accrue to the credit of the mess. This credit should be available for the drawing of extra amounts of other items where usage has shown additional quantities will be consumed. The use of the credit could also be extended to items not carried on the menu, for instance, additional salad items or luxury foods. By means of this concept the food waste of excess preparation will be avoided and a general upgrading of the ration will be realized. An additional benefit would be the incentive to the mess supervisor in discharging his meal planning responsibilities.

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[1]This would be applicable only to Army messes under current operating procedures. Messes of the other Services now have this type of flexibility. (Navy mess operators have the type of flexibility recommended within a 3-month accounting period. Unused rations at the end of the accounting period cannot be credited to the following quarter's allowance.)

J. FOOD SERVICE OPERATIONS

(This paragraph does not concern itself with meal planning, feeding practices, record keeping and data reporting. These aspects of food service operations are covered in other paragraphs.)

1. Conclusion

The use of military personnel in many of the food service operations cannot be supported on the basis of military essentiality.

It is estimated that over 51,000 enlisted personnel are currently being utilized in the CONUS food service operations of the four Services. These personnel are being used as food service supervisors, cooks, bakers, meat cutters, food handlers, mess attendants and in administrative and clerical positions. A serious question exists as to the use of military personnel for many of these functions in the CONUS. The following discusses this question by each functional category:

(a) Administrative and Clerical Positions

In many dining facilities--especially those consolidated messes feeding large numbers of personnel--there is a need for clerical and administrative personnel in addition to the mess supervisor. In some cases there are as many as four individuals full time on administrative work. In many cases this administrative requirement is being filled by direct hire civilian personnel. In every case where military personnel was observed performing this function during the course of this study, the mess supervisor agreed that there was no military requirement for the use of military personnel and that civilian personnel could perform as well or better. Military essentiality does not exist for this function.

(b) Mess Attendants

Of the 51,000 personnel involved in CONUS food service operations about 19,000 are mess attendants or K.P.'s. These personnel perform the cleaning up operations during and after meals. While in some Services or commands, K.P. is considered a normal or basic part of an enlisted man's duty there was no justification presented during the course of this study that K.P. was militarily essential for CONUS feeding. On the other hand there were indications that placing an enlisted man on K.P. had an adverse military effect by pulling him off training or his military specialty.

(c) Meat Cutters

The meat cutters under discussion are those utilized in the central meat cutting plants of the Services. They are required where carcass beef is utilized.

This operation in the military is confined to CONUS. Only boneless beef is used overseas and, consequently, meat cutters on a wholesale level are not required in overseas commands. Thus, there is no military requirement as such for meat cutters and the function is not militarily essential.

(d) Bakers

The bakers under discussion are those utilized in central bakeries and pastry shops. They are required where either contract bread is not utilized or where pastries for all messes are prepared in a central activity.

There is a need for bakers in overseas operations and aboard ship. While in most such cases the operation is comparatively small and does not involve the fixed installation type of operation that exists at CONUS posts, camps and

stations, there is a military justification for the use of some military bakers in CONUS operations.

(e) Cooks and Food Service Supervisors

The need for military personnel to perform cooking and food service supervisor duties in overseas operations and aboard ship clearly establishes a military justification for the use of military personnel as cooks and food service supervisors in CONUS operations. It is essential that such personnel be occupied in their technical specialty while in CONUS to ensure their ability to perform in overseas or shipboard situations.

2. Recommendation

Military personnel in the food service program in the CONUS be replaced where feasible by direct hire or contract civilian personnel wherever there is no military essentiality justification.

(a) Administrative and Clerical Positions

It is believed that it is feasible to utilize direct hire civilian personnel in every case where military personnel are now being used for administrative and clerical work at fixed CONUS installations. It is also believed, on the basis of study observations, that civilian personnel are more effective than military in such positions by virtue of continuity and the efficiency that results therefrom.

(b) Mess Attendants

The Navy conducted detailed studies of the use of contract mess attendants in lieu of military K.P.'s. The studies indicated that the average productivity of the civilian

mess attendants was higher than military personnel (85.8% vs. 69.2%) and that there was a 21.6% reduction in the number of personnel assigned to the cleaning function when civilians under contract were used. This reduction was computed to a replacement ratio of 1 civilian for every 1.3 Navy messmen.[1]

There are several installations in the Navy and Air Force where the concept of contractual mess attendants has been utilized--and the Navy is in the process of significantly extending the practice. Several contract mess attendant operations were visited during the course of the study and it was concluded that the concept is workable where an adequate year-round labor force exists. There are some problems--the unreliability of the type of labor involved, the health conditions of contracted individuals and the tendency of contractors to reduce labor force to an unsatisfactory level--but none are of the degree to question the concept's feasibility. In fact, in every case involving contract mess attendants supervisory food service personnel far preferred them to enlisted K.P.'s. Far less time was required to supervise the K.P. operation because of continuity of the civilian force, fewer personnel were required and the morale of enlisted men normally required to perform K.P. was substantially raised.

There is one situation that came to light during the study that might be an exception to the use of contract mess attendants in lieu of military K.P.'s. In some cases military personnel present at an installation are in a transient or "awaiting training" status. During this period they

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[1] "A Study to Determine the Feasibility of Using Contractual Mess Attendants to Replace Navy Messmen in General Messes Ashore, CONUS" by U.S. Naval Supply Research and Development Facility, Bayonne, New Jersey--26 June 1963.

are without permanent duty assignment and are available for use in such nonpermanent functions as K.P. In these situations it is clearly to the advantage of the Government to utilize such military personnel as K.P.

(c) Meat Cutters

Every type of manning of central meat cutting plants was observed during the course of the study except contract operations. Plants were manned solely by military, solely by direct hire personnel and by a combination of military and civilian. These manning differences existed within the Services as well as among the Services. No significant differences in the operations were noticed that could be attributed to the type of manning. It is believed that since this operation is not militarily essential and can be satisfactorily performed by civilian personnel that no need exists for the use of military personnel in CONUS central meat cutting plants.

(d) Bakers

As in the case of central meat cutting plants, many of the central bakeries and pastry shops use civilian personnel. While there is a military requirement for bakers in field and shipboard situations and thus a need for CONUS assignments for training and maintaining technical proficiency, it would appear that this need has been minimized in recent years and the use of direct hire civilian personnel has been possible in many cases. It is believed that the need for highly trained bakers is not as critical as it has been in the past and that a substantial portion of training and maintaining of technical proficiency can be obtained in the individual mess halls. This has been caused in part by the introduction and use of prepared mixes. Where central bakeries

and pastry shops are maintained solely as a measure of economy or efficiency it is believed they can be manned by civilians without degrading the military's ability to provide sufficiently trained bakers for outside CONUS operations. It is recommended that wherever possible within strict training requirements central bakeries and pastry shops be manned by direct hire civilians.

(e) Cooks and Food Service Supervisors

In order to have trained personnel available to meet other than CONUS requirements it is mandatory that cooking and supervisory assignments be available for military personnel at CONUS installations. This is the overriding consideration as to CONUS facility manning in this category of food personnel. There must be a sufficient number of cook and supervisory assignments in CONUS to provide the number of trained personnel for overseas and shipboard duty.

If CONUS requirements for supervisors, cooks and cooks' helpers exceed the need for non-CONUS requirements, the possibility arises of use of civilians in lieu of military. This possibility was explored during the course of the study by visits to installations utilizing both direct hire and contract personnel for the supervisory, cooking and food handling functions.

In the case of contract feeding--the use of a contractor and his personnel to plan, prepare and serve meals and perform the mess attendant functions--it was observed that it has not been successful in the opinion of those military food service specialists who have utilized or had an opportunity to observe it in operation. The contract is awarded

on a competitive basis on a fixed fee per ration served. As the raw food is furnished by the Government the only controllable cost to the contractor is labor. The less labor used the more competitive the contractor becomes and once awarded the contract the more profit he earns. This consequently leads to a minimum of service in all areas of food preparation and sanitation. The problem for the Government is magnified by the difficulty in establishing universal objective standards which can be applied to the acceptability of food management, food preparation or sanitation. If there are disputes in these areas it is difficult to prove unsatisfactory performance. Consequently, contract feeding is characterized by complaints of poor quality of food preparation, poor sanitation and poor contractor performance. The real problem is, can stringent enough requirements be established under government contracting procedures in the contract to ensure quality performance. It would appear that to date it has not been possible. Additionally, the Services are constantly faced with the possibility of strikes or work stoppages under contract feeding. In such cases the installations are hard pressed to immediately locate trained personnel to prepare the meals. This, of course, could lead to a serious situation.

For the reasons of military essentiality and the difficulty encountered in contract feeding it is recommended that contract feeding not be utilized for CONUS feeding. It is further recommended that re-evaluation be made of those installations currently utilizing contract feeding to determine whether such operations are in the best interest of the Government.

The use of direct hire personnel was also explored. The use of civil service personnel as cooks and cooks' helpers is not widespread and where observed was caused by the unavailability of trained military personnel. The problems associated with contract feeding are not present in use of direct hire personnel since the mess management and mess supervision remains under the direct control of the installation.

In summary it is recommended that the following be adopted as policy with respect to food service manning:

Activity	Type of Manning
Administration	Direct hire civilian.
Clerical	Direct hire civilian.
Mess Attendants	Contract--except where adequate labor force does not exist or where military personnel are constantly available in a transient or awaiting training status. (This is not to preclude the use of direct hire personnel when such would be of advantage to the Government.)
Central Meat Cutting Plants	Direct hire civilian.
Central Bakeries and Pastry Shops	Direct hire civilian--except for the minimum number of military assignments required for training.
Cooks and Food Service Supervisors	Military personnel--except for use of direct hire civilians where military not available or where requirement is over and above that regarded as sufficient to provide trained military personnel for overseas and deployment.

One allied feature of food service manning should be noted at this point. It was found during the course of the study that the authorized manning for cooks, cooks' helpers, mess attendants and supervisors varied as much as 33% between the Military Services for a given number of rations fed. It was also observed that civilian institutional feeding operations had lower manning requirements than did the Services. In view of this it is recommended that the OSD policy organization previously recommended develop uniform standards for food service operations. It is believed that some manpower savings will be realized as a result of a specific study in this area and the application of uniform standards throughout the Armed Forces.

K. PERSONNEL AND TRAINING

1. Conclusion

Food service is not an attractive career field in the Military Service and consequently there is an increasing shortage of qualified personnel throughout the Armed Forces.

It is generally accepted by those in the food service program--including professionals responsible for the direction of the program as well as those highly dedicated to food service--that food service is among the least attractive of all military career fields. There was no other single statement that was expressed more often and more unanimously agreed to during the course of this study than that the career field, if there is one, was not attractive, that food service had a poor image and that the program was generally unable to attract "high calibre" personnel. Whether or not this is actually the case, the fact is that the food service people believe it and

this in turn causes a morale problem. In one of the Services, the impression was received that it was "living off the shelf" with respect to qualified food service personnel. Most of the senior commissioned and enlisted personnel had entered the food service program during World War II and now are approaching retirement. There are only a relatively few younger qualified food service people coming up in the ranks. This has caused a problem and will result in a serious situation unless it is corrected in the near future.

The formal food service training programs currently in existence are excellent. They provide the student with exposure to all aspects of food service, including the basic features of mess management. However, the number of personnel receiving such schooling is far from adequate. It was generally acknowledged by all the Services that there is a chronic shortage of school trained cooks in the Armed Forces. It has been estimated that the schools are annually turning out only about one-third of the number of cooks and bakers required by the Services. As a result of this an extensive on-the-job training program exists in all the Services. Such training frequently is the only training experienced by the entire food service staff at an installation. Far more often than not the personnel interviewed during the course of the study who were responsible for million dollar a year food service programs had never had any training beyond that acquired in the performance of their daily duties as they advanced through the ranks. When it is considered that these individuals have in many cases almost total responsibility for menu planning, food preparation, handling of supplies and the feeding of thousands of individuals every day, adequate training becomes of paramount importance.

The personnel problem is further aggravated by the lack--with the exception of one Service--of a food service career program or an adequate training program for commissioned personnel. It is estimated that less than 5% of the officers in the Army, Navy and Air Force with food service responsibilities have had training in this field. In the Marine Corps, a specific career field has been developed that makes it possible for an individual to spend his entire career in the food service program. He will spend a prescribed number of years in the enlisted ranks performing all types of food service responsibilities. He then is eligible to compete for warrant and/or commissioned officer. If selected he will be placed in a "limited duty" category that will confine his duties to food service. He then progresses through the commissioned ranks assuming positions of increased importance as he acquires seniority. This system has provided the Marine Corps with commissioned food service supervisors who have selected the field as a career, are dedicated professionals and who have an ability to predict their career with some degree of accuracy. The other Services, with a few notable exceptions, staff their policy organizations and actual operations with personnel who have no training or food service background and who are in the assignment for only a single tour of duty.

2. Recommendation

It is recommended that personnel policies in the food service area be reviewed by the Services to ensure that equality of opportunity--promotional and otherwise--exists as compared with other career areas and that formal food service school training be expanded to more nearly meet the requirements for trained personnel.

It is recognized in making this recommendation that there is a limit to the amount of formal school training that can be conducted in any technical field and it is recognized that different career fields may have different requirements of education, training, experience, responsibility, hazards, etc., that may dictate different personnel policies. It is believed, however, on the basis of this study that the food service personnel and training situation warrants an immediate examination by responsible agencies to determine the action that is required to bring the food service area to an optimum level.

In this regard, it is believed that the establishment of the recommended OSD food service organization would contribute significantly to improving the status and elevating the image of food service--and by enhancing food service as a career assist in attracting and retaining high calibre personnel.

L. RESEARCH AND DEVELOPMENT

1. Conclusion

Food service research and development efforts would benefit from more centralized direction and from a clearer delineation of DoD-wide responsibilities among the various R&D facilities and organizations.

The food service R&D program of the DoD is small. Annual funding is less than $5 million. The program is conducted primarily at the Army's Natick Laboratory, the Navy's research facility at Bayonne, New Jersey, and the Army's Medical Research and Nutrition Laboratory at Denver, Colorado.

The effort devoted to CONUS feeding is negligible. A small amount of effort is expended on test and evaluation of new or improved food items developed by industry and occasional efforts are spent in designing or improving fixed dining and kitchen facilities. Practically all of the R&D program is directed to the development of special rations for combat, flight or space operations, the development of field and shipboard food service equipment and the study of influence of diets on endurance under conditions of stress, recovery from wounds or disease, etc.

This division of effort appears to be correct. CONUS troop feeding is so similar to civilian institutional-restaurant feeding that little or no military R&D in this area is required. As long as the military has the capability to evaluate civilian developments it need not expend additional time or funds on problems being aggressively attacked by the civilian food service industry. The military should always, however, be in the position to effect prompt consideration of new feeding concepts, new or improved food items and food service equipment advances as fostered by industry.

The major R&D effort should--as it is now--be directed to areas peculiar to the military. These areas are food technology, food service engineering and food nutrition.

(Most of the R&D efforts in these areas are devoted to other than CONUS feeding and would, therefore, be considered as outside the scope of this study. However, the following comments and recommendations are included in this report as important and inseparable to the conduct of the over-all R&D food program.)

Food technology R&D--the development of new or improved food items for special military rations--is conducted primarily at the U.S. Army Laboratory at Natick, Massachusetts. Some work has also been done at Bayonne and at the Air Force hospital at Brooks AFB. While the Natick Laboratory is by DoD direction charged with DoD-wide responsibility in the food technology effort, its efforts are primarily Army oriented. In addition there is no formal coordination of the R&D efforts in food technology among the various facilities nor is there a strong OSD monitoring of projects.

Food service engineering R&D--the development of food service facilities, equipment and methods for special military situations and conditions--is conducted at Natick and Bayonne. Since Natick concentrates on land feeding problems and Bayonne on shipboard feeding problems, there is no serious duplication of effort between the two facilities. Again, however, there is no centralized direction by OSD nor is there formal coordination of the R&D efforts in this area.

R&D in the nutrition area is conducted at several military activities. The U.S. Army Medical Research and Nutrition Laboratory at Denver does work on the metabolic requirements of men under stress, and have and can perform nutrition surveys. At the Walter Reed Army Medical Center efforts are devoted to such matters as metabolic disorders and proper diets for diseased persons. The Navy Medical Research Unit at Bethesda and a few other centers also are working in the general area of nutrition. There is no valid reason to consider consolidation of these functional research groups but there should be a high degree of coordination of nutrition research. There are good reasons to have such

research done in several locations where specific type patients and environments are readily available and different research needs are apparent--but this fact only intensifies the need for good coordination and dissemination of research findings.

With respect to the total food service R&D effort it was concluded that little or nothing would be gained by collocation of the facilities or organizations or even by major realignments of responsibilities. Excellent work is being performed by all the research organizations and with only a few exceptions there is no apparent duplication. It was concluded also, however, that--especially in view of the very limited amount of funds available--some benefits could be realized by a much more dynamic direction from OSD of the total R&D program, a more specific assignment of responsibilities and a more positive means of coordinating the efforts and ensuring proper dissemination of results.

2. Recommendation

It is recommended that a single DoD food service R&D program be developed and monitored by the OSD food service organization and that the specific responsibilities of each R&D facility/organization be reviewed by OSD to ensure elimination of duplication, adequate coverage and effective coordination.

This recommendation does not envision any major changes in the conduct of the R&D program. What is envisioned is the coordination and consolidation by the OSD of the R&D requirements of each Service so that an integrated optimum R&D program for the DoD as a whole may be formulated and that this program may be accomplished in the most effective manner.

For instance, there is no reason for having two R&D facilities--Natick and Bayonne--both involved in recipe preparation, acceptability studies, food item evaluation tests, etc. The responsibility for these tasks--and any tasks which have DoD-wide application--should be specifically assigned by OSD to a single R&D facility. Work similar in nature but peculiar in application-development of oven equipment for land use and development of oven equipment for shipboard use--should be coordinated by OSD to ensure the optimum use of the research dollar and talent.

It is considered that the dollar allocation to research in relationship to the total cost of the food service program is extremely low. This is especially true in the nutrition area where there is a critical need for more information concerning military nutrition problems. The nutritional needs are not yet known for greatest endurance, rapid adaptation, wound healing, maximum disease resistance and in relation to individual metabolic differences. It is recommended that research in these areas be vigorously supported.

As noted above, the R&D effort directed to CONUS feeding is negligible, so that this food service operation--labor and material costs of which are estimated at $520 million annually[1]--receives practically no R&D support. It is therefore recommended that testing of new food items and feeding systems proposed by industry be recognized as an important, indispensable function to be performed by DoD on a continuous and extensive basis. This function could be specifically

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[1]Labor costs were estimated at $5,748 per man per year. This is the average for grades E5 and E6 and includes pay, social security and quarters and subsistence allowance.

assigned to one of the existing facilities, or a new and independent facility and/or organization could be established for this purpose. Such a program could begin with the studies recommended in this report, e.g., determining the acceptability of ration items, comparing the efficiency and quality of new feeding systems, developing regional and mission-oriented menus, etc. If the expenditure of one million dollars per year on such studies would result in a saving of only one percent of the half billion dollar expenditure for CONUS feeding, it would pay for itself five times over.

M. FOOD SERVICE FACILITIES AND EQUIPMENT

a. Food Service Facilities

1. Conclusion

There is a need for more central guidance, direction and planning in the DoD for the design and layout of CONUS food service facilities.

Developing a good layout for a food facility is not a simple task. It is complicated by the diversity of functions to be performed, the control of quality and cost in a highly perishable food product, the social and psychological aspects of food service, and the specific mission and needs of the unit served. New foods bring marked changes in quantity food preparation and service and also make planning difficult. Not only must adequate facilities be provided for present day methods, but the investment involved demands that the facilities be designed to operate efficiently and effectively as future changes are injected into food facility operations.

Orderly and logical study of the functions to be performed and the development of facilities to aid in

accomplishing these functions form the basis for sound layout engineering. The days of designing food facilities by manipulating a previously successful plan into available space and current circumstances are rapidly passing. Highly specialized technical competence and professional creativity are essential inputs to sound design of modern facilities. Rarely have architects or equipment representatives specialized in the technical problems of quantity food service. Even more rarely has the base commander or any of his operative subordinates, including the food service officers, had the opportunity to develop the special competence appropriate to developing key facility plans for such substantial investments. Thus, there is an obvious and critical need for a highly specialized professional consulting group within the Defense Department whose services would be utilized in the planning and development of food service installations.

There exist today within the DoD individuals and organizations with the competence required for this specialized professional group. The individuals are located in the Engineering Departments and in the food service organizations of the Services but they are widely scattered. At least two formal organizations competent in the food service facility area exist. One is the Navy facility at Bayonne, New Jersey. This facility has had outstanding success in providing advice and assistance in the creation of new or improved food service facilities at various installations. Unfortunately, the existence and availability of this highly able and dedicated professional group is not known or used by all naval installations--much less the installations of the other Services--in the development or improvement of food facilities. The other

group is the Ad Hoc Tri-Service Definitive Committee. This Committee has been charged with the preparation of specifications and drawings for standard mess facilities of various sizes. The work of this Committee has not been completed.

2. Recommendation

It is recommended that DoD consolidate its food facility capabilities into one organization and that this organization have design and layout responsibilities for any new facilities or any major modification programs.

The framework for the implementation of this recommendation exists in the Definitive Committee and the facility group at Bayonne. These groups should be consolidated into one single group with facility responsibility for all of DoD. The use of this group to prepare facility layout and design should be mandatory for any new facility or any major rehabilitation or modernization program. This group would maintain constant liaison with command, food service research and development and industrial personnel to ensure the incorporation of all valid points of view. By the use of this single group, the maximum amount of standardization consistent with operational requirements and existing facilitation will be realized.

b. Food Service Equipment

1. Conclusion

Food service equipment for CONUS operations should be of commercial design and should be procured centrally where the items are "maintenance free" and locally where the items require technical servicing.

The equipment utilized in CONUS food service facilities does not present criteria which are essentially different from most institutional operations and commercial restaurants. Neither is there any uniqueness of need among the Services relative to equipment. Consequently, there is no need for the military to utilize equipment other than that readily available through commercial sources for use of the civilian food service industry.

The basic problem relating to equipment that was raised by both mess operators and supply personnel was that of method of procurement. Should it be local or central?

The arguments presented for central procurement of food service equipment included the following:

(a) The existence of depot inventory of equipment and parts for emergency and mobilization purposes.

(b) Cost benefits to be obtained through large supply contracts centrally negotiated.

(c) The potential for more competent and effective inspection and testing to ensure quality control and specification fulfillment.

(d) The application of more professional and technical competence in the decisions and judgments relating to procurement.

(e) The efficiencies of consolidation of personnel and supply facilities.

(f) More competent and comprehensive current inventory information and control.

(g) The opportunity for standardization between and within Services.

The arguments presented for local procurement are:

(a) The very largeness of a central procurement organization tends to build in time and technical lags which can be of an extremely serious nature in a "three times a day, every day" operation.

(b) Central procurement tends to remove both geographically and administratively the procurement authority from the point of operational responsibility for the equipment. Those who procure and supply it do not have to "live with it," and conversely those who have to "make it operate" feel they lose control of the technical decisions involved.

(c) Central procurement does not provide for input of local peculiarities of an operating system with which a new unit must be compatible.

(d) Central procurement removes from the manufacturers any responsibility for servicing and maintenance backup. This becomes a serious problem at the operating base level because there may or may not be a local service representation. If there is local service representation it may have no responsibility for the equipment and facilities involved because they were not procured locally.

(e) Directly related to the previous point is the practical impossibility of stocking spare parts to cover all situations and the severe time lag involved in obtaining repair parts unless they are stocked locally.

(f) The accumulation of a "hodgepodge" of different makes of similar equipment in any given facility over a period of time.

In analyzing these arguments, it is important to note that the total annual procurement of food service equipment has been estimated as less than $30 million--about equally divided between local and central procurement. Also, practically all of the equipment is the commercial "off-the-shelf" type. It is also worthy to note the considerable importance that was attached by command and operating personnel to the absolute necessity for vital pieces of food service equipment to be operable at all times.

In view of the foregoing, there appear to be two categories of equipment which present two extremes. First, there is a category of equipment which is essentially maintenance free. This category is extensive and includes such items as pots, pans, utensils, glassware, carts, trays, furniture, etc. These items present no servicing or technical problems at the base level nor do they involve extensive spare parts inventory requirements. Mess operations could proceed satisfactorily while awaiting supply action.

The second category is that of a smaller group of more complicated items. Items in this category are those which are electrically or mechanically complicated to the extent of requiring technical attention and periodic servicing and repair at the local level. They are the type of items that require spare parts inventory and professional maintenance skills. They are of such critical nature that if inoperable, mess operations would be severely handicapped or incapable of being conducted in a satisfactory manner.

The decision as to method of procurement--local or central--appears to align itself to these two categories. The use of central procurement with its attendant advantages is

believed to be most advantageous for those items in the maintenance-free category. The use of local procurement with the use of service-type contracts for the more sophisticated items would appear to be warranted for all other type items.

2. Recommendation

It is recommended that all food service equipment which is determined to be "maintenance-free" be procured centrally through the Defense Supply Agency and that all other items be authorized for local procurement.

It is believed that this recommendation will provide for the most effective operations at the lowest possible cost. Since the great majority of all equipment is of commercial design and normally available as off-the-shelf from several suppliers adequate competition can be secured for local purchases as well as central purchases. The depot system will be free of a mass of items and parts which are readily available from local commercial sources. Most importantly, maintenance and technical problems can be greatly reduced at the base level through effective procurement standardization and availability of manufacturers representatives and maintenance personnel. Whether procured locally or centrally, effective equipment sanitation standards can be established and applied (such as the Army's requirement that equipment meet the standards of the National Sanitation Foundation).

It is recommended that an ad hoc group composed of representatives of DSA and the Military Services be created to examine this area more fully and to code food service equipment as to central or local procurement based on the criteria outlined above. The coding should recognize the existence of

DSA stocks and provide for the postponement of local procurement authorization of any item until it no longer exists in the central supply system.

N. ACCOUNTING AND REPORTING

1. Conclusion

The time, money and effort consumed in food service accounting and reporting appears to be excessive.

The major aspects of food service accounting and reporting were described in paragraph G, Section IV. It was noted that 27 separate reports were required at a typical mess and that as many as five persons were required to maintain records and reports at a typical base. It is believed that food service and accounting need not require this extensive effort.

The primary objective of accounting and reporting in the food service program is to relate the cost of food consumed to the authorized allowance. If all the Services were on the same ration authorization and the monetary allowance was uniformly determined, a single system of accounting and reporting could be prescribed. This would eliminate the separate systems that now exist and would undoubtedly eliminate some detailed reporting requirements. For instance, since every enlisted man would be authorized the same ration there would appear to be no necessity for the record keeping within mess halls of number of meals consumed by personnel of each Service. Neither would there be any need for the extensive cross-billing between the Services as now exists. Report audit also would be facilitated by a single reporting system--as would be the collection of data required for budgetary purposes.

It is recognized that many of the reports and records that currently exist are for the valid purpose of strict accounting and control of food items at the mess hall level. It is believed, however, that many of the reports are unnecessary and that some of the controls are redundant. For instance, one Service has three sets of documents that record the amount of inventory at the mess hall. There is a form that issues food from the stock fund account to end use accounting. There is a stock level card at the mess hall for each item and there are requisition forms to draw food from the mess hall storeroom to deliver to the preparation area. A cook's worksheet duplicates the information on the local requisition form. This system can be contrasted to that of another Service that takes no inventory at mess hall level since all food items are considered as expended upon their transfer to the mess hall end use accounting. Since the basic systems of mess operations are different, the need for accounting and control varies--but not to the extent that currently exists.

2. Recommendation

It is recommended that upon the establishment of a uniform ration authorization and a single method of determining the ration allowance a single system of food service reporting and accounting be developed.

It is believed that through this recommendation significant improvements will be achieved. As noted previously the primary objective of a reporting system for food service is simply stated and is not complex in its achievement. Basically, each of the Services are now developing the same data--but in different formats and under somewhat

different conditions. What is needed is a thorough examination by management personnel of the four Services of present reporting, accounting and control procedures to ensure that under a uniform system of determining the ration allowance only the absolute minimum in the way of reports is required--and that such is prescribed in its most simple form.

EXHIBIT 1

LIST OF OFFICES, AGENCIES, ORGANIZATIONS AND INSTALLATIONS VISITED

(*Indicates visits made to actual mess operations.)

OSD	DSA	MARINE CORPS
OASD(I&L)	Hq. DSA	OQMG
OASD(Comp)	DPSC	Quantico*
OASD(ISA)	DGSC	Camp Pendleton*
OASD(Manpower)		San Diego Marine Depot*
ODDR&E		
OGC		
Joint Medical Board		

EXHIBIT 1 (Cont.)

ARMY	NAVY
OASA(R&D)	BUSANDA(R&D)
DCS/Pers	Bureau Medicine
OCR&D	Navy Subsistence Office
Hq. AMC(R&D)	Navy Supply R&D Facility
Office Support Services	Hq., DESPACFLEET
Army Subsistence Center	Anacostia Naval Annex*
Natick Laboratories	Norfolk Naval Station*
Medical Research & Nutrition Lab	Norfolk Naval Air Station*
Surgeon General	Great Lakes Naval Training Center
Ft. Lee*	Alameda Naval Air Station*
Ft. Belvoir*	Naval Station--Treasure Island*
Ft. Meade*	San Diego Naval Station*
Ft. Leonard Wood*	USS Little Rock*
Ft. Ord*	USS Montrail*
Hq. CONARC	USS Steinaker*
Hq. Second Army	USS Sutherland*

EXHIBIT 1 (Cont.)

AIR FORCE

Hq., USAF

Hq., AFLC

MAAMA--(Middletown)

Surgeon General

Andrews AFB*

Langley AFB*

Scott AFB*

Otis AFB*

Chanute AFB*

Hamilton AFB*

Brooks AFB*

Randolph AFB*

Hq., TAC

Hq., MATS

OTHER GOVERNMENT AND INDUSTRY

Dept. of Commerce

Job Corps

Food & Drug Adm.

Univ. of Maryland

Univ. of Illinois

Dehydrated Foods Ind. Council

Hot Shoppes

Giant Kitchens

Bickfords

American Machine & Foundry

Thomas J. Lipton Co.

A. K. Supply, Inc.

Hanover Canning Co.

EXHIBIT 2

FOOD SERVICE SYSTEMS OF THE DEPARTMENT OF DEFE

Item	Army	Air Force
I. Legal Basis For The Ration	Exec. Order #5952 as Amended--10 U.S.C.4561	Exec. Order #5952 as Amended--10 U.S.C.9561
II. Organization		
A. Departmental Staff Level	Office of Support Services, HQ D/A	Gen. Support & Svc. Div., DCS, Systems & Logistics, HQ D/AF
B. Operational Organization (No. of Personnel)	Army Subsistence Center, Chicago, Ill. (69)	HQ/AFLC & Personal Equip. & Svc. Div., MAAMA (24)
III. Ration Computation		
A. Who Computes	Army Subsis. Center (Basic) & Post (Actual)	Army Subsis. Center (Basic) & Base (Actual)
B. How Often	Monthly	Monthly
C. Basis of Costing	39 Items of Exec. Order	39 Items of Exec. Order
D. Approx. Ration Value (Fall 1965)	1.06	1.09
E. Pricing of Food Items	DPSC Prices	DPSC Prices
F. Issue Cycle	3 Times/Wk	3 Times/Wk
G. Method of Attendance Check	Headcount	Signature Count
IV. Menu Planning Recipes		
A. Menus		
1. Who Plans	Joint Army/AF Menu Bd.	Joint Army/AF Menu Bd.
2. Who May Modify	Post Menu Board	Base Menu Board
B. Recipes		
1. No. in Use	1,000	1,000
2. Who Develops	ASC and MAAMA	Same as Army
V. Nutrition		
A. Who Sets Basic Standards	Surgeon Gen.	Surgeon Gen.

EXHIBIT 2

YSTEMS OF THE DEPARTMENT OF DEFENSE

	Air Force	Navy	Marine Corps
as 4561	Exec. Order #5952 as Amended--10 U.S.C.9561	10 U.S.C. 6081-87	10 U.S.C. 6081-87
Ser-	Gen. Support & Svc. Div., DCS, Systems & Logistics, HQ D/AF	Asst. Chief, BUSANDA, for Navy Food Service Programs	Station Services Mgt. Br. OQMG
en- (69)	HQ/AFLC & Personal Equip. & Svc. Div., MAAMA (24)	Navy Subsistence Office (55)	Station Services Mgt. Br. OQMG (8)
tual)	Army Subsis. Center (Basic) & Base (Actual)	Navy Subsis. Office	Post Food Svc. Officer
	Monthly	Quarterly	Monthly
Order	39 Items of Exec. Order	Cost Index--250 "Typical" Items From Historical Navy Menus	Cost Index--47 Items plus specified amount for condiments and related products. This load made up by OQMG.
	1.09	1.16	1.14
	DPSC Prices	Navy Fixed Price List	DPSC Prices
	3 Times/Wk	1 Day--2 Wks. (90 Days for Ships)	2-3 Times/Wk
	Signature Count	Headcount	Headcount
Bd.	Joint Army/AF Menu Bd.	Installation Mess Off.	Installation Menu Board
	Base Menu Board	-----	-----
	1,000	700	700
	Same as Army	NSO and Bayonne	Navy/Marine Corps Recipe Service--Jointly developed by Navy and Marine Corps.
	Surgeon Gen.	Bur. Med. & Surg.(Based Upon Nat. Food & Nutrition Board.)	Bur. Med. & Surgery (Based upon Nat. Food and Nutrition Board.)

Item	Army	Air Force	
B. What Approval of Menu	Medical Approv. of Master Menu. Changes Approved by Local Med. Off.	Medical Approv. of Master Menu. Local Med. Off. acts as advisor to base food service officer.	No Me (Inst mande
I. Operations			
A. Personnel Involved			
1. No. People Authorized to Subsist (CONUS)	289,595	191,536	101,8
2. No. People on Commuted Rations (CONUS)	144,840	239,598	157,4
3. Food Svc. Personnel (CONUS)	18,900	12,000	6,200
4. Total No. Authorized to Subsist	535,128	256,956	377,9
5. Total No. People on Commuted Rations	225,580	299,384	189,7
6. Total Food Svc. Personnel	35,000	18,700	19,00
B. Budget For Subsis. In Kind FY 66			
1. Funds	$207 Million	$87 Million	$155
2. Percent of DoD Total	42%	18%	32%
C. Absentee Rate (CONUS)	15%	29%	30%
D. Facilities			
1. Total No. Instls. in CONUS Feeding Personnel	78	404	107
2. Total No. Indiv. Dining Facilities (CONUS)	1,961	542	107 [1]
3. Size of Facil. (CONUS)	75% Facil. Under 200 Man Size & Feed About 60% of Total	Dining Halls 600 & Above Size. Feed About 80% of Total	22% D & Abo About
E. Central Facilities (CONUS)			
1. Bakery	12	None	None
2. Meat Cutting	26	5	None
3. Pastry Kitchen	13	80	None

[1] The Navy does not distinguish a separate preparation and eating area as a separate mess of the installation mess.

	Air Force	Navy	Marine Corps
of Mas- es Appro- d. Off.	Medical Approv. of Master Menu. Local Med. Off. acts as advisor to base food service officer.	No Medical Approval (Installation Commander approves menu.)	Medical Personnel included on Base Menu Board. (Installation Commander approves menu.
	191,536	101,819	52,836
	239,598	157,419	54,016
	12,000	6,200	4,270
	256,956	377,985	112,420
	299,384	189,702	57,120
	18,700	19,000	7,900
	$87 Million	$155 Million	$43 Million
	18%	32%	8%
	29%	30%	22%
	404	107	33
	542	107 [1]	125
200 About	Dining Halls 600 & Above Size. Feed About 80% of Total	22% Dining Halls 1,600 & Above Size & Feed About 72% of Total	41% Messes 500 & Above Size & Feed About 78% of Total
	None	None	5
	5	None	6
	80	None	Combined With Bakery

tion and eating area as a separate mess. It is considered a branch

Item	Army	Air Force
F. Use of Civilians (CONUS)		
1. Mess Attendants	Minor or None	1 Inst. (Contract)
2. Complete Food Svc. (Cooks, Bakers, Mess Attendants)	Minor or None	25 (Contract)
3. Administrative	Minor or None [1]	Minor [1]
G. Special Feeding Problems	Field	Alert, Missile Site, In Flight
VII. Personnel		
A. Training		
1. Operational	Cooks (8 wk) Bakers (5 wk) Ft. Lee--5 Training Centers. Output: 4000-5000/yr.	Cooks (8 wk)--Ft. Lee 800/yr.
2. Management	Subsis. Officer (18 wk) 37/yr. Unit Mess Off. (3 wk)	Ft. Lee--8 to 15/yr. Food Supervisor Course (16 wk)
3. % Mgmt. Who Have Rec'd. Formal Training	5% Approx.	Less Than 5%
4. % Operating Personnel Who Have Rec'd. Formal Training (Approximate)	40%	33%
B. Food Service Teams		
1. Where Located	a) Army Subsis. Center b) Army HQs	Commands (AF does not have teams comparable to Army & Navy.)
2. How Often Visit Installations	a) Once/3 years b) 2 Times/yr.	a) Workshops 2/yr. b) Vary With Command About 1/yr.
C. Special Service-wide Incentive for Mess Performance	None	Hennessey Award

[1] The placement of civil service personnel in administrative food service functions base commander. There is no information readily available on the extent of the us use was observed on field trips.

y	Air Force	Navy	Marine Corps
ne	1 Inst. (Contract)	Increasing to 27 Instls. (Contract)	Minor or None
ne	25 (Contract)	Minor	Minor or None
ne [1]	Minor [1]	Minor [1]	Minor or None [1]
	Alert, Missile Site, In Flight	Shipboard, In Flight	Field
) Bakers Lee--5 nters. Out- 000/yr.	Cooks (8 wk)--Ft. Lee 800/yr.	Cooks & Bakers (5 wk) 400/yr.--Also Use of Ft. Lee to Limited Ext.	Cooks (14 wk) Bakers (11 wk)--460/yr.
icer (18 wk) Mess Off.	Ft. Lee--8 to 15/yr. Food Supervisor Course (16 wk)	Commissaryman (14 wk) 680/yr. Ft. Lee: Subsis. Off. (5/yr.) Food Serv. Supervis. (2/yr.) Michigan State U.(2/yr.) Navy Supply Corps Sch. Athens, Ga.--for Supply Corps Officer personnel.	ADV Stewards (10 wk) 20/yr. Unit Mess Off. (1 wk)-20/yr. Ft. Lee: Mess Superv. (8/yr.) Amer. Inst. of Baking (Chicago) (20 wk)-1/yr.
	Less Than 5%	Less Than 5%	100% Food Serv. Officers, Warrant Officers
	33%	40%	60-70%
sis. Center	Commands (AF does not have teams comparable to Army & Navy.)	a) Navy Subsis. Office b) Area Teams	2 Teams--East & West Coast
ears yr.	a) Workshops 2/yr. b) Vary With Command About 1/yr.	a) Hold Workshops 1 or 2/yr. b) On Request	Once Every 2 yrs. or Upon Request
	Hennessey Award	Ney Award	None

administrative food service functions at base level is at the discretion of the dily available on the extent of the use of civilians in these operations. Some

Item	Army	Air Force
VIII. Research & Development		
A. Staff & HQ Groups & Elements Involved With Subsistence Research	Chief R&D, Surgeon General & AMC	None (Space Feeding at Brooks AFB)
B. Operating Labs	Natick & Army Denver Labs	None
C. Type of Work Accomplished	1) Research, Dev., Adv. Devel. & Engr. Devel. of Specs on Combat Foods, Field Equip., Packaging & New Foods & Food Processes 2) Nutrition, Research	None
D. R&D Funds Spent Annually in Subsistence Area	$3 Million	None
IX. Equipment		
A. Origination of Specs.	Natick	Natick
B. Test & Evaluation Performed	Ft. Lee-Natick	None
X. Accounting & Reporting		
A. No. Reports, Forms, etc. Used at Base Level in Subsis. Opns. (Avg.) (Includes Meat & Bakery Opns.)	20	27
B. No. Reports, Forms Forwarded by Base	2	2
1. How Often	Monthly	Monthly
2. Who Receives	Army Subsis. Center, Army HQs	Commands
C. No. Supporting Documents, Forms	4	7
D. Cross Service Reimbursement	At HQ Level	At Base Level
E. Military Personnel Fund Allotment	Open	Command Level

	Air Force	Navy	Marine Corps
rgeon	None (Space Feeding at Brooks AFB)	BUSANDA, CNM	None
Denver	None	Bayonne Labs	None
Dev., Adv. . Devel. of at Foods, Packaging Food Pro- rition,	None	Advanced Engineering on Equip., Especially Ship-board Testing of Food Items, Equip. Devel. Specs., Design Layouts Food Service Systems	None
	None	$300,000	None
	Natick	Natick, Bayonne, Newport	Natick
k	None	Bayonne	None
	27	16	19
	2	2	1
	Monthly	Monthly & Quarterly	Monthly
Center,	Commands	NSO & Navy Finance Center	Station Services Mgt. Br. USMC
	7	8	12
	At Base Level	HQ Level	HQ Level
	Command Level	Open	Field allotments granted to all major commands. Small units cite Head-quarters authority number.

EXHIBIT 3

RATION COMPONENTS CONTAINED IN ARMY/AIR FORCE EXECUTIVE ORDER

Article		Quantity
Meat:		
Bacon	oz.	2
Beef, fresh	oz.	10
Chicken, fresh	oz.	2
Pork, fresh	oz.	4
Eggs, fresh	oz.	1
Dry vegetables and cereals:		
Beans	oz.	.5
Rice	oz.	.6
Rolled oats	oz.	1.5
Fresh vegetables:		
Beans, string, canned	oz.	3
Corn, canned	oz.	2
Onions	oz.	2
Peas, canned	oz.	2
Potatoes	oz.	10
Tomatoes, canned	oz.	2
Fruit:		
Apples, canned	oz.	1.5
Jam or preserves	oz.	.5
Peaches, canned	oz.	1.2
Pineapple, canned	oz.	1.2
Prunes	oz.	.3

EXHIBIT 3 (Cont.)

Article		Quantity
Beverages:		
Coffee, roasted or roasted and ground	oz.	2
Cocoa	oz.	.3
Tea	oz.	.05
Milk:		
Milk, evaporated	oz.	1
Milk, fresh	oz.	8
Lard:		
Lard	oz.	.64
Lard substitute	oz.	.64
Butter	oz.	2
Flour, wheat	oz.	12
Baking powder	oz.	.09
Macaroni	oz.	.25
Cheese	oz.	.25
Sugar	oz.	5
Cinnamon	oz.	.014
Flavoring extract	oz.	.02
Pepper, black	oz.	.04
Pickles, cucumber	oz.	.16
Salt	oz.	.5
Sirup	oz.	.5
Vinegar	oz.	.16

EXHIBIT 4

RATION COMPONENTS CONTAINED IN NAVY RATION LAW

(1) Eight ounces of biscuit or twelve ounces of soft bread or twelve ounces of flour.

(2) Twelve ounces of preserved meat or fourteen ounces of salt or smoked meat or twenty ounces of fresh meat, fish, or poultry.

(3) Twelve ounces of dried vegetables or eighteen ounces of canned vegetables or forty-four ounces of fresh vegetables.

(4) Four ounces of dried fruit or ten ounces of canned fruit or six ounces of preserved fruit or sixteen ounces of fresh fruit or six ounces of canned fruit or vegetable juices, or one ounce of powdered fruit juices, or six-tenths of an ounce of concentrated fruit juices.

(5) Two ounces of cocoa or two ounces of coffee or one-half ounce of tea.

(6) Four ounces of evaporated milk or one ounce of powdered milk or one-half pint of fresh milk.

(7) One and six-tenths ounces of butter.

(8) One and six-tenths ounces of cereal or rice or starch foods.

(9) One-half ounce of cheese.

(10) One and two-tenth eggs.

EXHIBIT 4 (Cont.)

(11) One and six-tenths ounces of lard or lard substitutes.

(12) Two-fifths of a gill of oils or sauces or vinegar.

(13) Five ounces of sugar.

(14) Such quantities of baking powder and soda, flavoring extracts, mustard, pepper, pickles, salt, sirup, spices, and yeast as required.

EXHIBIT 5

ASSISTANT SECRETARY OF DEFENSE
Washington, D. C.

Installations and Logistics DATE: 27 May 1965

TASK ORDER SD-271-24
(TASK 65-30)

1. Pursuant to Paragraph C, Article 1 of Department of Defense Contract No. SD-271 with the Logistics Management Institute, the Institute is requested to undertake the following task:

A. TITLE: Food Ration and Food Service Management in the Department of Defense.

B. SCOPE OF WORK: This task is a follow-on to Task 65-17, title as above. Its purpose is to provide a basis for improving the organizations and procedures of the Department of Defense in providing the daily ration. The scope of work will be as described by the following five subtasks:

1) General Food Management Practices. The objective of this subtask is to develop a plan with short- and long-range goals for upgrading the management practices and the organization of the military subsistence systems. This subtask will explore the areas of budgeting, accounting and control; personnel development and training; and the organization and procedures for the direction of the individual military services subsistence systems.

2) Uniform Ration. The objective of this subtask is to develop alternative bases for a uniform armed forces ration.

3) Research and Development of Food Items and Food Service Equipment. The objective of this subtask is to develop a plan and/or procedures which will optimize the research efforts of the Department of Defense in the areas of food and food service equipment.

4) Nutritional Policies and Menu Planning. The objective of this subtask is to examine menu planning, nutritional standards, policies and procedures of the subsistence systems and to develop recommendations relating thereto that will provide for the most effective management of these matters.

5) Food Service Equipment. The objective of this subtask is to develop plans to secure the best possible supply management of food service equipment. This task will include evaluation of the methods of determining item specifications, testing of equipment and the relationship of equipment design and food service layouts to new feeding concepts.

2. SCHEDULE: Work on this task will be completed about six months after the date of acceptance of this Task Order.

/s/ Paul R. Ignatius

ACCEPTED with the understanding that LMI plans to employ consultants or a subcontractor for some of the work involved, but will monitor the subcontracted work, keep informed as to its progress and coordinate it with other LMI activities to provide interchange and review of all products of the work.

ACCEPTED: /s/ Barry J. Shillito

DATE: May 27, 1965