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**CONSUMER AND WORKER EVALUATION OF  
CASH FOOD SYSTEMS:  
LORING AFB (PART II-LONG TERM FINDINGS)**

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August, 1976

#15

**UNITED STATES ARMY  
NATICK RESEARCH and DEVELOPMENT COMMAND  
NATICK, MASSACHUSETTS 01760**



**Food Sciences Laboratory**

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This is the third in a three-part series of studies to assess the acceptability of the new BAS/A La Carte food system to the consumers and food service workers at Loring Air Force Base, ME. In this system, all personnel receive separate rations (a monetary food allowance), and meals in the dining hall are purchased on an item-by-item basis. Surveys and interviews were administered to the consumers and workers in December 1975, 11 months after BAS/A La Carte had been implemented. Responses were compared with similar		

data collected one month before BAS/A La Carte (Pre-Test) and two months after (Post-Test I).

Consumers' reactions to the system itself did not change in the interim between Post-Tests I and II. Thus, most airmen continued to prefer separate rations for themselves, and to support the policy whereby all personnel would receive them. However, they were generally dissatisfied with the amount of food received. Attitudes toward the item-pricing policy were more equivocal; some, particularly those who previously did not receive separate rations (RIK's), indicated that they received less food per dollar than before. Small but consistent improvements occurred from the Pre-Test to Post-Test I and from Post-Test I to Post-Test II (concerning opinions toward the dining hall and its various features). Despite these improved attitudes, however, the RIK's still did not find the food acceptable. As a consequence, no significant changes occurred from before BAS/A La Carte to the present test in the RIK's general rating of this dining hall in comparison to others in the Air Force. Older airmen who received separate rations even before BAS/A La Carte, on the other hand, expressed satisfaction with the food in Post-Test II and an increase from the Pre-Test II in their ratings of the Loring AFB dining facility in comparison to others in the Air Force.

## PREFACE

The reported work is the final phase of a three-phase project conducted at Loring AFB, ME. The first phase was completed in December 1975, the second phase in March 1976, and the final phase in November 1976.

The authors would like to acknowledge the cooperation received throughout the project from Lt. Thomas and Cpt. Best of the Food Service Office at Loring AFB and from the various unit chiefs. Appreciation is also expressed for the able assistance of Ms. Nancy Cobean, Ms. Majorie Berman, and Mr. Peter Priori in the preparation and analysis of the survey and interview data.

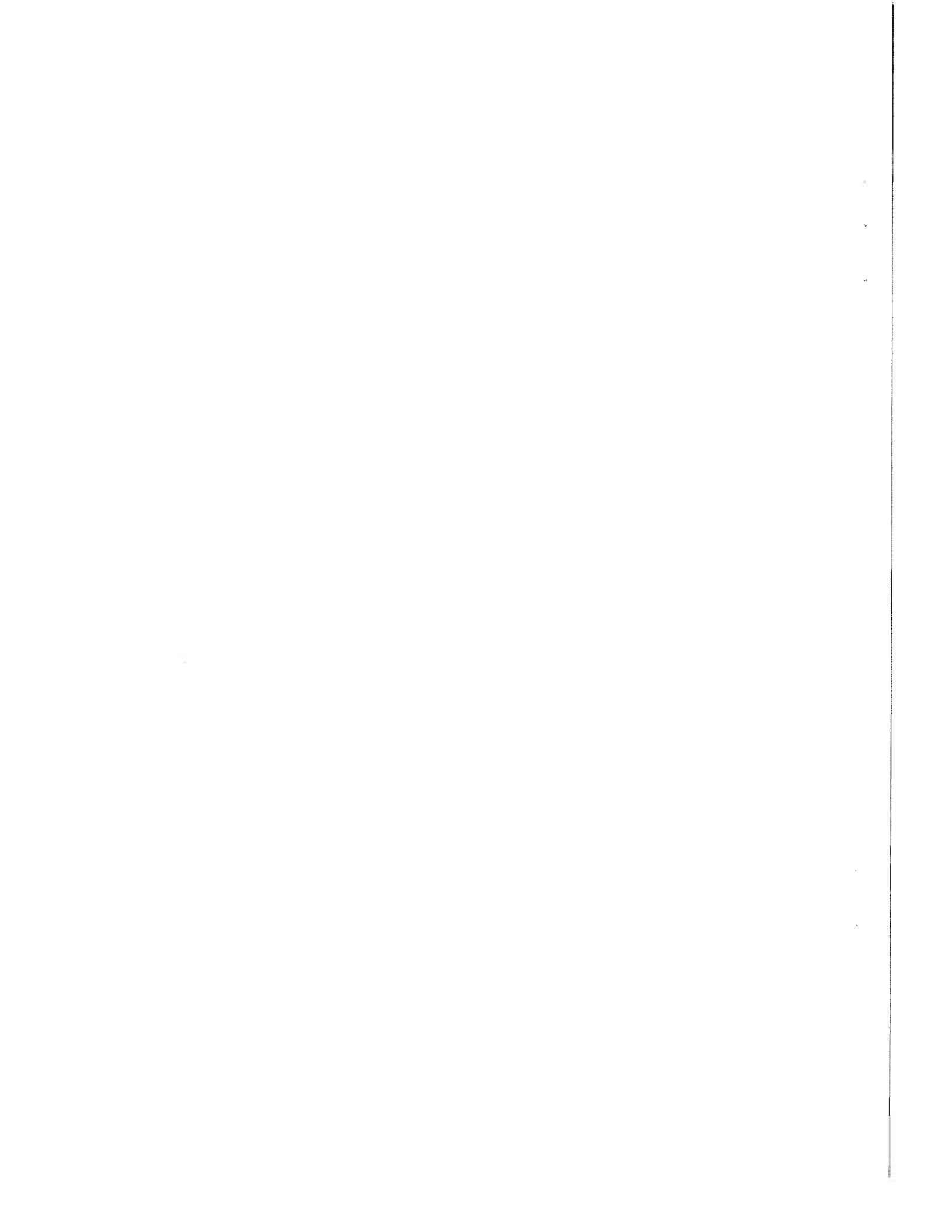


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## CONSUMER AND WORKER EVALUATION OF CASH FOOD SYSTEMS:

### LORING AFB (PART II - LONG TERM FINDINGS)

#### INTRODUCTION

In January 1975, Loring AFB, ME, became the second location for testing the BAS/A La Carte dining concept. (Shaw AFB, SC, was the first in October 1972.) The concept involved: (a) placing all personnel on BAS, as opposed to the traditional procedure of providing BAS only to those meeting certain grade or marital criteria (BAS refers to Basic Allowance for Subsistence, or separate rations, meaning the receipt of an allowance for food rather than authorization to eat in the dining hall at no cost); and (b) charging for food in the dining hall on an item-by-item basis, as opposed to the traditional method of charging those on BAS a flat meal rate regardless of the specific foods selected.

To assess the impact of this system on consumer and food service worker attitudes, samples of both groups were interviewed and surveyed 1 month before and 2½ months after the system began. In general, both groups expressed greater satisfaction with the dining system after BAS/A La Carte than before. The complete results of these tests are discussed in the report of Siebold, Symington, Graeber, and Maas (1975).<sup>1</sup>

Concern was expressed in this report that the short-term improvements in attitudes may have represented an instance of the Hawthorne Effect, viz., that the improvements were temporary and due to the perceived special attention the Loring AFB personnel received as subjects for the BAS/A La Carte test, rather than due to the actual system changes.

There is also evidence from the scientific literature that novelty itself can elicit positive attitudes, which then wanes with increasing familiarity (e.g., Berlyne, 1970).<sup>2</sup> Accordingly, the initial positive reception of BAS/A La Carte may have been substantially weighted by its novelty. If so, a decrease in satisfaction could be expected as patrons and workers become more familiarized with the new system. The possibility that the initial positive opinion toward BAS/A La Carte represents nothing more than the effect of perceived special attention and/or of novelty becomes quite serious, of course, when considering BAS/A La Carte as a permanent replacement for the traditional military dining system.

<sup>1</sup>Siebold, J.R., Symington, L.E., Graeber, R.C., & Maas, D.L. Consumer and worker evaluation of cash food systems: Loring AFB (Part I - Short term findings). U.S. Army Natick Development Center Technical Report 76-35-FSL, 1975

<sup>2</sup>Berlyne, D.E. Novelty, complexity, and hedonic value. Perception & Psychophysics, 1970, 8, 279-286.

To investigate the long-term acceptability of this system, interviews and surveys of the consumer and worker population were repeated in December 1975, 11 months after the system had been implemented. The purpose of this report is to present the findings from this work and to compare them with short-term results obtained 2½ months after the system began.

For the sake of brevity, this report will concentrate only on those areas where differences between the short- and long-term tests were obtained. The reader is referred to Siebold, et al (1975) for a detailed discussion of the short-term findings. The format used in that report will be retained here to facilitate point-by-point comparisons of the two sets of data.

In the remainder of the report, the paper-and-pencil surveys and the personal interviews obtained 1 month before, 2½ months after, and 11 months after BAS/A La Carte will be referred to as the Pre-Test, Post-Test I, and Post-Test II, respectively.

#### METHOD

Since the interviews, surveys, and procedure used in collecting information from both the consumers and workers in Post-Test II were similar to those used in the Pre-Test and Post-Test I, the reader is referred to Siebold, et al (1975) for complete details concerning methods. Two exceptions to this similarity should be noted. First, the interview protocol administered to the consumers during Post-Test II was new. A copy of it is included in Appendix A. The survey administered during the two post-tests, however, was the same. Second, during Post-Test II, consumers were largely sampled in groups of 5 to 10. While each group completed the survey, members of the group were taken individually for interviews. All the interviews and approximately half the surveys were collected in this fashion. The remaining surveys were obtained in two large group sessions. This procedure was in comparison to that followed in the Pre-Test and Post-Test I where surveys were administered exclusively to large groups, independently of the individual interviews.

In Post-Test II, personal interviews were administered to 107 airmen, 56 of whom reportedly received rations-in-kind (a meal card authorizing meals in the dining hall at no cost) prior to the implementation of BAS/A La Carte. They will be referred to as RIK's. The remaining 51 were designated as BAS's - persons who reportedly received BAS (separate rations) even before BAS/A La Carte began. Two-thirds of the BAS group and half of the RIK's had been at Loring AFB at the time BAS/A La Carte was implemented, although only approximately 13% of each group had participated in the Pre-Test or Post-Test I. In addition to the interview, surveys were obtained from 96 RIK's and 113 BAS's, who included the 56 RIK's and 54 BAS's previously mentioned as having been interviewed.

Interviews and surveys were obtained from each of 30 of the military and 26 of the civilian work force in the dining hall.

## RESULTS AND DISCUSSION

As in the previous report, results of specific statistical tests are carried in an appendix (B). They will be noted in the text by numbers in parentheses, e.g., (1), which correspond to the numbered results in Appendix B.

### Consumer Interviews and Surveys

#### Demographic Data

No significant demographic differences between Post-Test I and II were found for either the interview or the survey samples. Consequently, one may assume that the attitudinal differences to be reported below are not attributable to differences in sample composition, at least with respect to the demographic variables considered in the survey and interview.

#### Effect of BAS/A La Carte on Attitudes Toward That and Other Food Systems

No change was found between Post-Tests I and II with respect to airmen's desires to receive separate rations themselves. Virtually all of the BAS's and approximately 82% of the RIK's in both samples chose this option over meal cards.

The Post-Test II RIK's were asked to explain their choice. The two principal reasons given in support of separate rations were flexibility in choosing where to eat (26% of the responses) and loss of money when on meal cards (23%). Many respondents reported that, while on meal cards, they frequently ate in places other than the dining hall, even though this required paying for meals with their own money. Other respondents cited the flexibility provided by separate rations in choosing what (10%) and when (8%) to eat, and in generally spending their money as they pleased (10%).

Three reasons were specified by the eight Post-Test II RIK's who preferred a meal card: not having to worry about money for food, being able to get more to eat, and spending more money for food than was received.

As in Post-Test I, the policy whereby all personnel are given separate rations, as under the BAS/A La Carte system, received majority support again in Post-Test II (approximately 75% of the RIK's and BAS's at both times). The reason given by most of those in opposition to placing all personnel on BAS also remained the same: some, particularly the younger airmen, were considered unable to budget and likely to suffer nutritionally as a result. A number of respondents at both times

also simply felt that the choice of ration policies should be left to the individual. (A complete and detailed breakdown of these responses, as well as those to the preceding question, are contained in Appendix C.)

Concerning the budgeting issue, a series of questions were asked in both post-test interviews about changes in food habits over the pay period. The specific questions and the percentage of respondents answering affirmatively to each are shown in Table I.

Table 1

Questions Asked in the Post-Test I and II Interviews Concerning Changes in Food Habits Over the Pay Period and the Percentage of BAS's and RIK's Answering Affirmatively to Each

Do you find that you eat any differently toward the end of the pay period than at the beginning?\*

	<u>Post-Test I</u>	<u>Post-Test II</u>
BAS	22%	24%
RIK	32%	44%

Do you eat any more or less often toward the end of the pay period than at the beginning?

	<u>Post-Test I</u>		<u>Post-Test II</u>	
	<u>More</u>	<u>Less</u>	<u>More</u>	<u>Less</u>
BAS	0%	13%	0%	14%
RIK	4%	27%	2%	24%

Is the amount of money you pay for a meal any more or less toward the end of the pay period than at the beginning?

	<u>Post-Test I</u>		<u>Post-Test II</u>	
	<u>More</u>	<u>Less</u>	<u>More</u>	<u>Less</u>
BAS	0%	23%	2%	22%
RIK	4%	40%	0%	39%

Do you eat in the dining hall any more or less often toward the end of the pay period than at the beginning?

	<u>Post-Test I</u>		<u>Post-Test II</u>	
	<u>More</u>	<u>Less</u>	<u>More</u>	<u>Less</u>
BAS	17%	7%	2%	7%
RIK	11%	22%	23%	12%

\*When asked what specifically changed, nearly half of these BAS's and RIK's at both post-tests cited reductions in the amount eaten, either in terms of food per meal or the frequency of meals.

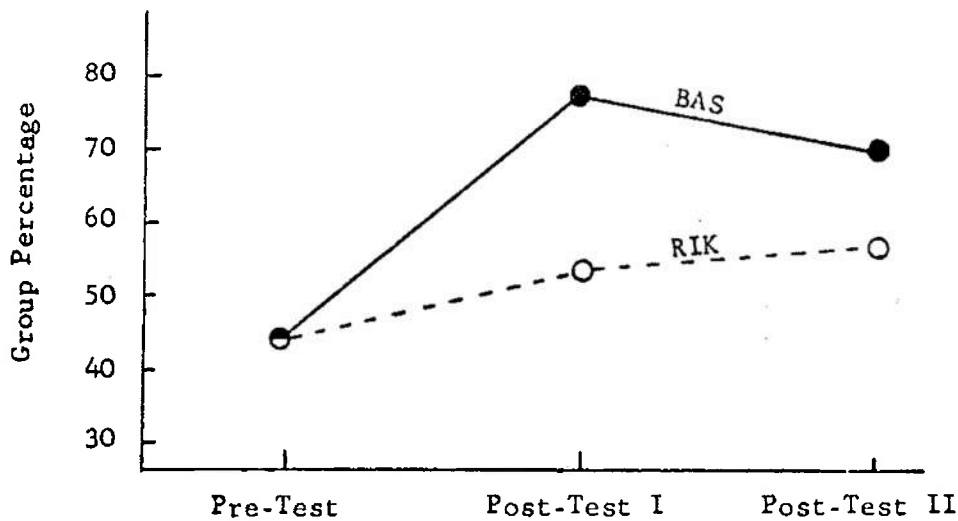
In summary, these data indicate that: (a) the food habits of most personnel, both BAS and RIK, did not fluctuate over a pay period; (b) the percentage of persons whose habits did so change remained the same from Post-Test I to Post-Test II (approximately 23% of the BAS's and 38% of the RIK's); and (c) RIK's did not differ significantly in this respect from BAS's at either post-test, although the incidence of food habit changes for RIK's consistently did exceed that for BAS's in absolute terms. The last of these findings mitigates the aforementioned assertion by a number of respondents that problems in budgeting food money occurred exclusively among younger airmen.

There was one exception to the last findings, however. Post-Test II RIK's were significantly more likely than their BAS counterparts to report increments in the frequency of eating meals in the dining hall toward the end of the pay period (1).

As previously mentioned, the BAS/A La Carte concept consisted of two primary components. One component, placing personnel on separate rations, received general approval at both post-tests as noted. The second, item-pricing, met with a less favorable reception. Although the percentage of respondents selecting item- over meal-pricing increased from the Pre-Test to Post-Test I (significantly so only for the BAS's), a substantial minority remained unfavorable to the item-pricing concept (Siebold, *et al*, 1975). No significant change in these circumstances occurred at Post-Test II (Figure 1).

Figure 1

Percentage of BAS's and RIK's Preferring Item-Over Meal-Pricing During Each Test Period



At both post-tests, approval for item-pricing was expressed by more BAS's than RIK's (significant at the .05 probability level), which is not surprising given that the BAS's reportedly relied less than RIK's on the dining hall as their main meal source (see next section). Further, as will be discussed below, RIK's were generally less satisfied than BAS's with the size of food portions served in the dining hall. This dissatisfaction, of course, could also be responsible for the less positive reaction of RIK's to item-pricing.

The reasons given by respondents for their choices at the two times were also similar between post-tests. Having to pay for only chosen items constituted the main attraction of item-pricing (approximately 50% of the responses), followed by the ability to save money under this arrangement (approximately 18%). Economic issues also were the focus of those opting for meal-pricing, the majority of reasons referring to a better food/cost ratio under meal-pricing, free seconds, or the greater expense involved in item-pricing. (Again see Appendix C for a complete accounting of these responses.)

As in Post-Test I, the survey administered during the second post-test contained a one-page insert, eliciting evaluations of a variety of food systems. Siebold, et al (1975) can be seen for details of this brief survey. The essential point here is that, in agreement with the preceding data, no changes in the hierarchy of favored systems occurred over the Post-Test I - II interval. The most popular systems had all persons on separate rations and item-pricing.

#### Effect of BAS/A La Carte on Reported Attendance in the Dining Hall

Since a primary purpose of BAS/A La Carte was to increase attendance at meals in the dining hall, the effect that separate rations and item-pricing each had on respondents' attendance patterns was of considerable interest. In the past, such patterns were assessed by having respondents numerically estimate the frequency with which they ate meals in the dining hall (e.g., Siebold and Meiselman, 1974).<sup>3</sup> Evidence has accumulated, however, which seriously questions the validity and reliability of such reports. Siebold, in a study to be published in the near future, found that self-reported estimates were not only inaccurate with respect to actual observed attendance, but also that the degree of their inaccuracy varied over meals and among subjects. With regard to reliability, the rates reported in surveys (including those involved in the Loring tests) have consistently disagreed to a considerable extent with those reported in interviews, despite the homogeneity of the two groups. Furthermore, approximately 18% of the survey sample at each of the Loring tests failed even to complete the attendance question properly. Until improvements in methodology are

<sup>3</sup>Siebold, J.R., & Meiselman, H.L. Consumer evaluation of cash food systems: Shaw Air Force Base. U.S. Army Natick Laboratories Technical Report 75-77-FSL, 1974



made, therefore, little emphasis can be given to airmen's numerical estimates of their own attendance rates.

An alternative to this method of assessing attendance patterns is to ask about changes in attendance frequency over a given time period. This latter technique was used in both post-test interviews to inquire whether item-pricing had influenced the respondents' attendance. No significant differences were found between the tests. Collectively, the majority of each group (75%) said their attendance patterns had been un-influenced by item pricing; and the remainder were split, 13% saying their attendance had increased because of the policy and 12% saying it had decreased.

In comparison, the reported effect of conversion to separate rations on RIK attendance was more negative, although it too did not differ significantly between post-tests. Again, most respondents said their attendance rates did not change because of this shift in ration status (49%). Of the others, however, disproportionately more indicated decreased attendance (46%) than increased attendance (5%).

The reasons Post-Test II interview respondents reportedly did not eat in the dining hall more frequently were similar to those cited during Post-Test I: conflicting meal habits which took precedence to eating in the dining hall (e.g., eating at home with family, eating at times other than when the dining hall is open), problems with the food (e.g., variety, preparation quality), convenience (e.g., no transportation to or from the dining hall, location of the dining hall), and problems with the eating environment (e.g., monotony of the same facility, long lines). The distribution of the Post-Test I and II BAS and RIK samples among these general categories is shown in Table 2. (See Appendix C for a complete listing of the responses within each of these categories.)

Table 2

Main Reasons Post-Test I and II Respondents  
Reportedly Did Not Eat in the Dining Hall  
More Often (In Percentages)

	<u>Post-Test I</u>		<u>Post-Test II</u>		<u>Total</u>
	<u>BAS</u>	<u>RIK</u>	<u>BAS</u>	<u>RIK</u>	
Conflicting Habits	64%	51%	33%	31%	49%
Problems with Food	9%	35%	18%	29%	23%
Convenience	19%	6%	14%	15%	13%
Problems with Dining Environment	2%	6%	4%	15%	7%
Other	6%	2%	11%	10%	8%

No significant differences were found between Post-Test I and II for either the BAS's or the RIK's, i.e., the reasons respondents did not eat in the dining hall more often at Post-Test I did not change significantly during the interval leading up to Post-Test II. Differences did emerge, however, in comparisons between BAS's and RIK's. At both tests, the BAS group placed a lesser emphasis on the dining hall food and environment, and a greater emphasis on conflicting habits than did RIK's (which would be expected from the higher marital rate among BAS's than among RIK's). These differences achieved statistical significance, however, for only Post-Test I (2), during which the groups also differed in their emphasis on the convenience factor.

Questions about where airmen did eat were included in both the survey and the interview. Given a list of possibilities and required to provide their typical weekly attendance rate at each, survey respondents at both post-tests reported eating most often at private residences (including barracks); civilian diners, restaurants, and drive-ins; and other installation facilities, in that order. Mentioned less frequently and in no particular order, were civilian bars and taverns, vending machines, and mobile trucks. Although this order held for both, BAS's reported a significantly greater frequency of meals in private residences (3) and a significantly lesser frequency in bars and taverns (4) than did RIK's. Of most importance, however, was that no changes occurred over the interval between post-tests.

Post-Test II interviewees were asked where they ate most often during a typical week. Their responses are shown in Table 3. Once again the BAS's and RIK's differed significantly (5), primarily within the private residence and dining hall categories. (Note that other installation facilities were cited more often than civilian facilities, whereas survey respondents gave the reverse order.)

Table 3

Meal Sources and the Percentage of Post-Test BAS and RIK Interviewees Citing Each as Where They Eat (1) Most of Their Meals and (2) At Least One Meal Per Week

	(1) Most		(2) At Least Once Per Week	
	BAS	RIK	BAS	RIK
Private Residence	72%	41%	27%	34%
Dining Hall	16%	39%	37%	36%
Other Installation Facility	10%	11%	27%	34%
Civilian Facility	2%	9%	37%	67%

The two groups did not differ significantly, however, with regard to other places where they reportedly ate at least one meal a week. One or more location in each category was mentioned by approximately one-third of both groups, with the exception of the civilian facility category which was cited by 61% of the RIK's. (Of the civilian facilities mentioned, McDonald's was clearly the most popular, constituting 48% of the RIK and 33% of the BAS responses under the civilian facility category. See Appendix C for a complete listing.)

The frequent mention, particularly among BAS's, of private residences as the most frequented meal source agrees with the finding above that conflicting and preferred meal habits, most of which involved eating at home, were the foremost reasons airmen gave for not eating in the dining hall more often.

#### Effect of BAS/A La Carte on Food Habits in the Dining Hall

It was revealed in the Post-Test I interviews that many respondents were eating differently in the dining hall because of BAS/A La Carte. The specific differences reported were: (a) a decrement in the amount of food consumed at meals (37% of the BAS's and 47% of the RIK's); (b) a change in the types of foods consumed (62% of the BAS's and 59% of the RIK's), many in the direction of less expensive meats; and (c) a decrement in the observed amount of plate waste (89% of the BAS's and 75% of the RIK's) (Siebold, et al, 1975).

It was not possible in Post-Test II to determine whether these reported changes persisted. To do so would have required a standard with which to measure these habits at each test point or a single, well-identified group for whom changes in food habits could be periodically assessed. Neither was available. Although Post-Test II respondents could have been asked, like the Post-Test I respondents, to compare their present food habits with those prior to being exposed to BAS/A La Carte, such reports would have involved recall of behaviors occurring up to 11 months previously and would, therefore, have included an increased amount of error variance due to the memory factor.

Information tangential to the food habits question was available, however, from a survey question asking respondents to rate eight different factors for their importance in determining food choices. A close similarity was found between the weightings assigned at the two post-tests (6) -- subjective liking, food appearance, and variety assuming the greatest importance, followed by cost (which was considered relatively unimportant by Pre-Test RIK's), compatibility with other foods, and familiarity. Interestingly, the least important factors were nutritional value and caloric content of a food. To the extent that these ratings relate to actual food habits, therefore, few changes in habits apparently occurred in the interval between post-tests.

## Effect of BAS/A La Carte on Financial Attitudes

An important food habit variable is the amount of money expended on meals in the dining hall. The average amount of money reportedly spent by Post-Test I and II interviewees for a typical noon meal was \$.88 and \$1.09 for the BAS's, respectively, and \$.98 and \$1.07 for the RIK's, respectively. The BAS difference was statistically significant (7), indicating that they were spending more for meals as the BAS/A La Carte test progressed. This increase was not due solely to the increase between post-tests in the rations rate from \$2.41 to \$2.53, as indicated when the BAS's average lunch cost was recomputed in terms of the per-cent of daily rations spent -- a significant increase from 37% to 41% was still found (8).

As in Post-Test I, approximately 75% of Post-Test II BAS's and approximately 55% of the RIK's expressed discontent with their current rations allowance, despite the increase to \$2.53. The percentages for the BAS's and RIK's were significantly different (9), as they were in Post-Test I.

When asked how much they felt they needed, Post-Test II BAS and RIK respondents reported \$3.84 and \$3.54, respectively in comparison to the \$4.12 and \$3.18 reported in Post-Test I. The difference between the Post-Test I and II reports were not significantly different for either group. (This was due to the high variability in the amounts reported, e.g., Post-Test II BAS's reports ranged from \$1.20 to \$8.50 and RIK's from \$1.25 to \$5.00.) Unlike Post-Test I, the difference in amounts reported by the BAS's and RIK's during Post-Test II was not statistically significant, despite the greater dissatisfaction with the rations allowance expressed by the BAS's in comparison to the RIK's.

It was mentioned in the previous report and should be reiterated here that the airmen's dissatisfaction with the rations allowance does not imply that they were unable to purchase the meals they wanted in the dining hall, but rather that the frequent meals they had outside of the dining hall cost more than they were paid. (It is possible, of course, that respondents would have been dissatisfied regardless of the amount they received.)

The critical feature of these findings for the present purposes is that airmen's attitudes about the rations allowance and the spending habits in the dining hall were similar between the two post-tests, with the exception of the BAS's reportedly spending more for noon meals at Post-Test II than at Post-Test I.

The paradoxical finding of Post-Test I that airmen were generally unable to report the current daily rations rate accurately, despite their stated discontent with it, was repeated at Post-Test II. Of the BAS's and RIK's combined, 28% said they did not know the figure at all (versus 32% in Post-Test I), 31% gave figures inaccurate by 10 to 40 cents (same percentage during Post-Test I), and 18% gave estimates off by 41 cents or more (in comparison to 12% of the Post-Test I sample). Thus, despite their

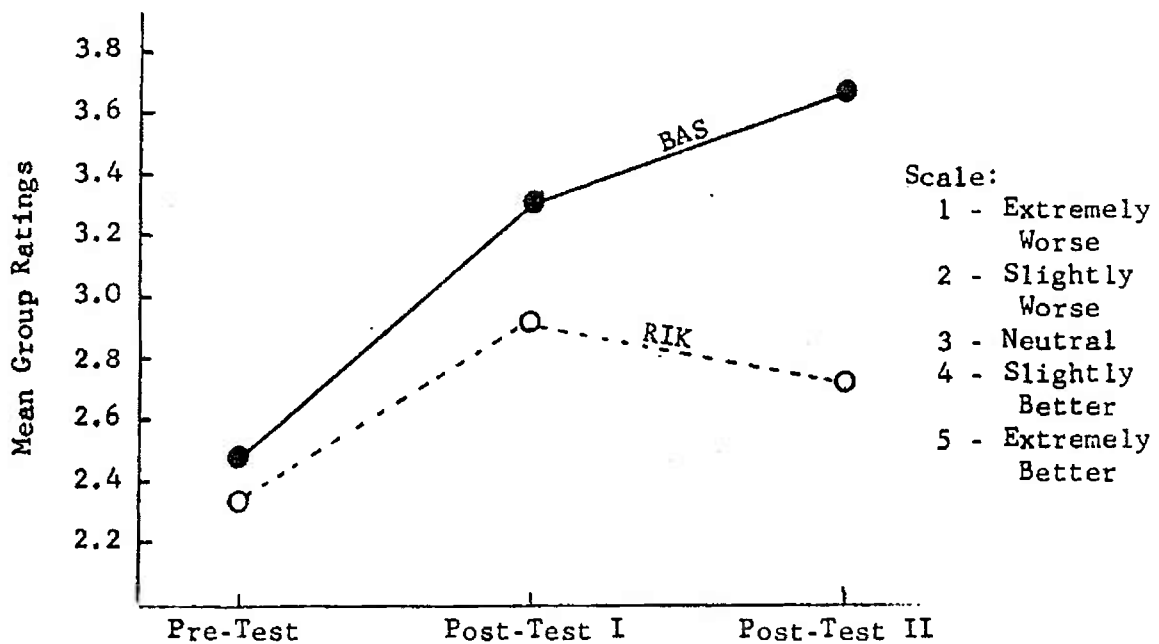
lengthy exposure to BAS/A La Carte, airmen continued to remain relatively unaware of how much they received per day for food, indicating that if they do budget for food it must be on other than a daily basis.

Effect of BAS/A La Carte on General Attitudes

A general indicator of the acceptability of the new food system was yielded by an interview and survey question requiring respondents to rate on a 5-point scale their dining hall in comparison to others in which they had eaten. The mean interview responses of the BAS's and RIK's at each of the three test periods are shown in Figure 2. (The survey data yield the same conclusions.) The initial increase from the Pre-Test to Post Test I for both groups was significant (10), indicating an increment in consumer satisfaction from before BAS/A La Carte to after. In comparison, neither of the differences between Post-Test I and II attained statistical significance. However, if the Pre-Test responses are compared to those obtained in Post-Test II, a picture emerges which is somewhat different than the one yielded by the comparison of the Pre-Test and Post-Test I, since only the difference for the BAS's attained statistical significance (11). RIK's were not significantly more satisfied at this general level with the dining system at Post-Test II than they were prior to BAS/A La Carte.

Figure 2

Ratings of This Dining Hall in Comparison to Others by BAS's and RIK's at Each Test

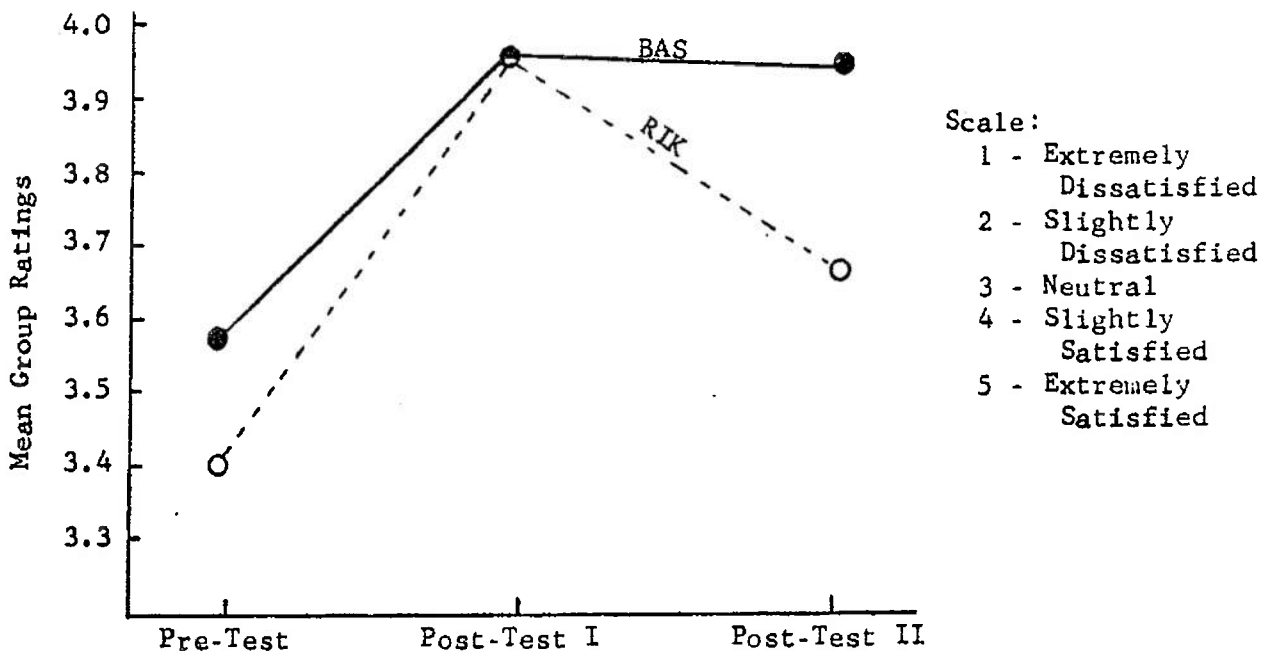


After completing these ratings, Post-Test II respondents were asked to explain their evaluations. The most frequent reason given by those rating this dining hall better than others had to do with item-pricing (primarily among BAS's) and the atmosphere of the dining hall and its decor. For those who felt this dining hall was worse than others, the most frequent reasons were in reference to poor quality and preparation of the food and too little variety, particularly in reference to changes in menu from meal to meal (intermeal variety).

A similar situation occurred when interviewees were asked to rate on a 5-point scale their satisfaction with the effort expended by the Air Force in meeting its contractual agreement to provide them with subsistence (Figure 3). In this case, however, the initial increase from the Pre-Test to Post-Test I was significant for only the RIK's (12). Although the Post-Test II ratings by each group were numerically greater than the corresponding Pre-Test ratings (though lower than the Post-Test I ratings), in neither case did the difference attain statistical significance. Thus, among RIK's general satisfaction with the food system at Post-Test II (as measured by these two questions) no longer represented a significant increase from their Pre-Test ratings.

Figure 3

Ratings of Satisfaction with Air Force Food Service by BAS's and RIK's at Each Test



When asked whether the Air Force could improve food service to such an extent attendance would increase, approximately 75% of both post-test interview samples answered affirmatively. The suggestions proposed also remained essentially the same between post-tests, most referring to improvements in food (particularly variety) and in the dining environment. A number of BAS's in Post-Test II felt continuation of item-pricing and periodic special meals would be effective in improving attendance. (See Appendix C for a detailed breakdown of these suggestions.) As in Post-Test I, however, approximately 12% of the RIK's and 34% of the BAS's who felt the Air Force could increase attendance said their own attendance could not be improved, even if the suggestions they made were implemented. Of most significance here is that the incidence of this paradoxical viewpoint was of a similar frequency between post-tests.

#### Effect of BAS/A La Carte on Attitudes Toward the Dining Service

A useful item for assessing airmen's attitudes toward specific features of the dining facility was contained in the survey administered at both post-tests. It listed 14 different dining service features, requiring respondents to rate each on a 5-point (Very Good to Very Bad) scale. The mean ratings assigned to each feature by the BAS's and RIK's at each test are depicted in Figure 4. (Note that this figure shows only three points of the 5-point scale.)

The following observations may be made. First, for 10 of the 14 features, the ratings by both BAS's and RIK's were most negative during the Pre-Test, intermediate during Post-Test I, and most positive during Post-Test II, indicating that attitudes toward these specific features improved with BAS/A La Carte and continued to improve over time. The Post-Test II mean exceeded the Pre-Test mean for all but one feature, and significantly so for nine of the features (13). The one exception, unsurprisingly, was the expense feature as rated by the RIK's.

Second, the greatest improvements in attitude occurred with respect to food features, as opposed to features of the dining hall or of the service, which is of interest since food quality, variety, and quantity have traditionally been the most problematical consumer areas in Air Force food service (Branch, Meiselman, & Symington, 1974).<sup>4</sup> The mean increase from the Pre-Test to Post-Test II was .58 scale points for the food features, which was significantly greater than the mean .31 scale-point increase for the other features (14). In the Pre-Test, BAS means for all five food features were to the negative side of neutral; whereas, in Post-Test II, all were to the positive side of neutral. A similar negative-to-positive shift did not occur for the RIK's, for whom only one food feature (short-order variety) was rated above the neutral point during Post-Test II.

Third, at each test, BAS's generally gave more positive ratings than RIK's. Furthermore, although increases in ratings from the Pre-Test to Post-Test II were registered by both groups, the increases by the BAS's

<sup>4</sup>Branch, L.G., Meiselman, H.L., & Symington, L.E. A consumer evaluation of Air Force food service. U.S. Army Natick Laboratories Technical Report 75-22 FSL, 1974

Table 4

Mean Ratings of 14 Dining Facility Features By RIK's and BAS's  
At the Pre-Test (1), Post-Test I (2), and Post-Test II (3)

RIK

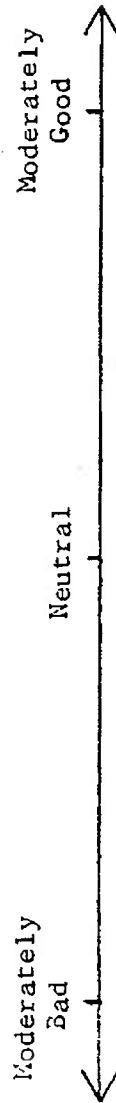
	← Moderately Bad			Neutral	Moderately Good →		
Convenience						1	2 3
General Environment				1			2 3
Military Atmosphere				1	2	3	
Eating Companions							1 2 3
Expense						3	1 2
Hours of Operation				1	2	3	
Monotony of Same Facility		1	2 3				
Food Quality		1	2	3			
Food Quantity					1 2 3		
Service						2	1 3
Food Variety (Weekdays)		1	2 3				
Food Variety (Weekends)		1	2	3			
Food Variety (Short Order)		1		2	3		
Wait in Line				2	1	3	



Table 4 (Cont'd)

Mean Ratings of 14 Dining Facility Features By RIK's and BAS's  
At the Pre-Test (1), Post-Test I (2), and Post-Test II (3)

BAS



Convenience			2	1	3
General Environment			1	2	3
Military Atmosphere		1	23		
Eating Companions			1	2	3
Expense			1	3	2
Monotony of Same Facility	1	2	3		
Food Quality		1	2		3
Food Quantity			1	2	3
Service			2	1	3
Food Variety (Weekdays)		1	2		3
Food Variety (Weekend)		1	2		3
Food Variety (Short Order)		1		2	3
Wait in Line			2	1	3

were greater than those by the RIK's for 11 of the 14 features, which is significantly more often than would be expected by chance (15). This is consistent with the previous findings that only the BAS's comparative rating of the general dining service increased significantly between the Pre-Test and Post-Test II.

More detailed survey data regarding both food and non-food features follows:

A. Food Features. With regard to specific elements of food quality, 16 possible conditions of foods (e.g., undercooked, stale, greasy) were listed, and respondents indicated whether each occurred never, sometimes, often, or always. Although few of the differences among tests attained statistical significance, the pattern of differences clearly supported the data on food quality in Figure 4 which showed an improvement in the BAS's and RIK's attitudes toward this factor. The reported frequency of occurrence for nine of the 16 conditions was greatest during the Pre-Test, least during Post-Test II, and intermediate during Post-Test I. In addition, in every case, the Pre-Test mean for the BAS's and RIK's exceeded the corresponding Post-Test II means.

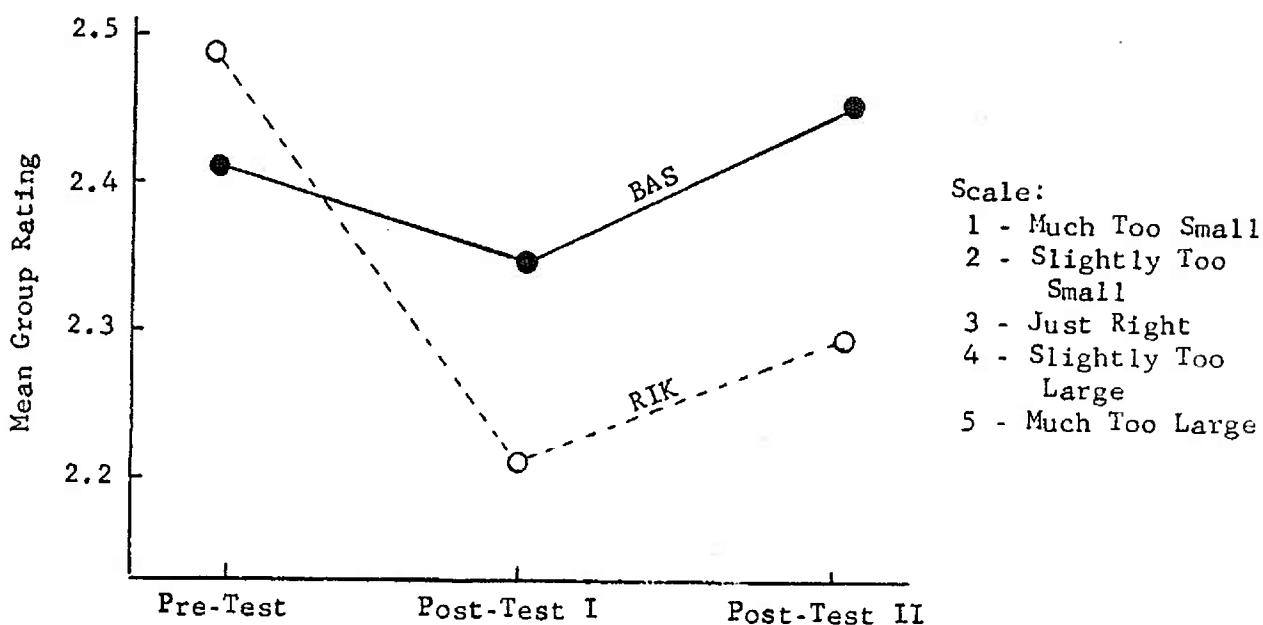
Food quantity has been a central issue involved in the implementation of BAS/A La Carte, since there was some question of whether a system financially required to emphasize portion control would cause dissatisfaction over portion size. To test this possibility, survey respondents rated the portion sizes of four food classes on a 5-point (Much Too Small to Much Too Large) scale. Consistently, at each test, meats received the most undesirable ratings, although none of the food types received mean ratings above the neutral point at any of the tests. This pattern has been repeatedly found in previous studies at other Air Force Bases (Branch, et al 1974). Further, RIK's consistently expressed greater dissatisfaction with portion sizes than BAS's.

Most important, however, were the variations in these responses over tests (Figure 5). In comparison to Pre-Test, the initial reaction to portion size under BAS/A La Carte was negative, significantly so for the RIK's. This dissatisfaction lessened, although not significantly, between post-tests. Nonetheless, Post-Test II ratings of RIK's remained significantly below those from the Pre-Test (17). Hence, although less negative than previously, RIK's remained significantly more dissatisfied with portion sizes after BAS/A La Carte than before, while the BAS's level of satisfaction remained unchanged.

Superficially, this conclusion seems at odds with the data in Table 4 which showed a significant improvement from the Pre-Test to Post-Test II in airmen's ratings of food quantity when this factor was presented in the context of the 14 general dining facility features. A possible solution to this discrepancy emerged from the airmen's responses to the question of how often they left the dining hall hungry. For both the BAS's and RIK's, no differences were found between the Pre-Test and Post-Test I or between Post-Test

Figure 5

Mean Ratings of Portion Size by BAS's and RIK's  
at Each Test (Averaged Over Food Classes)



I and II. When the Pre-Test was compared to Post-Test II, however, significantly more of the latter BAS's (58%) and RIK's (45%) said this event never occurred than did the former BAS's (36%) and RIK's (24%) (16). Apparently, therefore, airmen learned to compensate for the perceived inadequacy in portion sizes of foods by purchasing a sufficient number of items to eliminate their hunger. This analysis is consistent with the finding noted above that Post-Test II respondents reportedly spent more for meals in the dining hall than did the Post-Test I respondents.

The final food feature considered in the survey, food variety, has been, along with food quality, the primary source of discontent among airmen regarding military dining service (Branch, et al 1974). One purpose of BAS/A La Carte was to remedy this problem by increasing the number of selections at each meal. Despite this change, however, airmen generally expressed no more satisfaction with food variety at Post-Test I than at the Pre-Test (Siebold, et al 1975). This finding applied to variety at weekday meals, weekend meals, and over the course of a month.

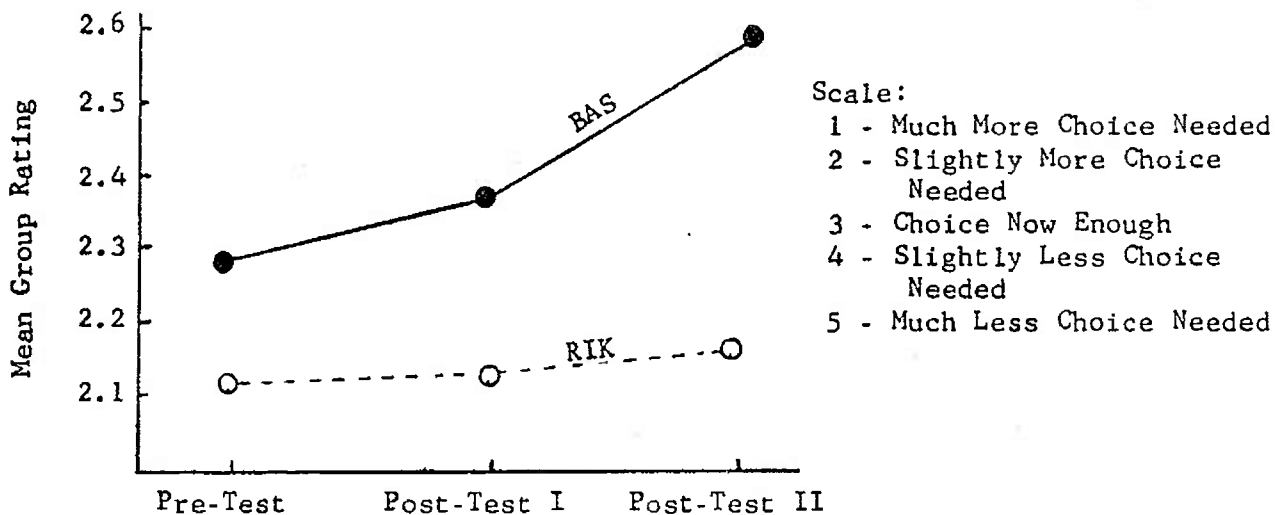
These attitudes apparently changed, however, as greater experience with the new system was acquired. It was noted earlier in relation to Figure 4 that general ratings of food variety for both weekday and weekend meals, and of the variety of short-order items, increased significantly from Post-Test I to Post-Test II. Similar increases for both BAS's and RIK's

occurred in the specific ratings of the variety available in each of seven food classes for both weekday and weekend meals (18). This is not to suggest, however, that the Post-Test II airmen were now content with variety, since all of their ratings remained to the negative side of neutral. The most serious problems, as has traditionally been the case, were with the meat and short-order items; followed by desserts; and then by vegetables, starches, and salads in no particular order. Beverages were perceived as least problematical.

Thus far this discussion has focused on variety in terms of the number of offerings available at a particular meal (intrameal variety). During both post-test interviews, however, frequent criticisms were made of intermeal variety, i.e., changes in menu from meal to meal. This aspect of variety was not dealt with under the BAS/A La Carte system. It was not surprising, therefore, that the RIK's ratings of the variety of menus in a month did not change between tests (Figure 6). In rating the seven food classes involved in this question, BAS's, on the other hand, expressed significantly greater satisfaction during Post-Test II than during either the Pre-Test or Post-Test I. This divergence of opinion was not entirely unexpected, since RIK's reportedly attended meals in the dining hall more often than the BAS's and, therefore, would be more sensitive than BAS's to menu variety over a long period of time. BAS's were less dissatisfied than RIK's in general with intermeal variety.

Figure 6

Mean Ratings of Menu Variety Over the Course of a Month at Each Test by BAS's and RIK's (Averaged Over Food Classes)



In general, then, opinions of food features, traditionally the most criticized aspect of food service, were improved by BAS/A La Carte. Further, these improvements in attitude, rather than dissipating with familiarity, seemed to strengthen as greater experience with the new system occurred. The two primary exceptions concerned portion size and intermeal variety. Also, this improvement in attitude was generally greater for the BAS's than for the RIK's.

B. Features of the Dining Environment and Service. As is apparent from Figure 4, improved consumer attitudes were not limited to features of the food. Although no extensive changes in dining environment and service occurred as a result of BAS/A La Carte, airmen's attitudes toward some of these features did change. Of the nine environment/service features listed in Figure 4, seven were rated higher during Post-Test I than during the Pre-Test, two of the increases attaining statistical significance -- monotony of the facility and general dining environment (19). This reported improvement increased even further as time progressed. With the exception of the RIK's evaluation of the expense factor, all environment/service features received greater ratings from Post-Test II respondents than from the corresponding Pre-Test airmen. Five of these differences were statistically significant (20) (see Figure 4).

To attain more detailed information, survey respondents were asked to rate each of 21 characteristics of the dining environment on a 5-point semantic differential scale (e.g., roomy/cramped, colorful/drab, clean/dirty floors). In general, differences in ratings among tests were small and few were significant. Overall, however, in 67% of the cases for the BAS's and 86% for the RIK's, the least and greatest ratings were assigned during the Pre-Test and Post-Test II, respectively. According to chance, the ordering of Pre-Test lowest and Post-Test II highest should occur only 17% of the time. Thus, BAS/A La Carte apparently did improve these attitudes and continued improvement occurred with continued exposure to the system. (Regardless of these shifts, however, the characteristics receiving most criticism remained the same among tests: the unpleasantness of the view, the crowdedness, the noise, and the facility's general lack of aesthetic appeal.)

A similar pattern was obtained when survey respondents rated: (a) the frequency of six atmospheric conditions in the dining hall (e.g., too cold, stuffy), and (b) three factors related to the social atmosphere of the dining hall (e.g., conditions acceptable for relaxed conversation). In each case, small and nonsignificant differences occurred among tests, but in the consistent order of least positive ratings during the Pre-Test and most positive ratings during Post-Test II.

Two areas which have caused some concern among BAS/A La Carte consumers are lines and service. Waiting in lines represented the only feature

of the first BAS/A La Carte system (Shaw AFB, SC) which elicited significant negative opinions (Siebold & Meiselman, 1974). Similarly, at Loring AFB, these were the only two of the 14 general features which received more criticisms from both BAS's and RIK's during Post-Test I than during the Pre-Test (see Figure 4).

It appears from the data in Figure 4, however, that during the interval between post-tests both problems were ameliorated somewhat, or airmen adapted to them, because both features received significantly more positive ratings at Post-Test II than at Post-Test I (20). Concerning lines, an additional survey question asking how long respondents had to wait in line and an interview question asking whether lines were longer or shorter after BAS/A La Carte than before BAS/A La Carte yielded a similar conclusion -- waiting in line was less a problem at Post-Test II than at Post-Test I, although for neither of the latter two questions did the difference attain statistical significance.

### C. Discussion

Two aspects of the foregoing data require further note. The first concerns the general improvement in opinions toward features of the dining facility and the fact that relatively few overt changes in the dining hall occurred in correspondence to them. That is, there was relatively little basis in reality for the observed enhancement in attitudes, which may represent an instance of the halo effect, viz., the tendency of persons who are favorably impressed with a single trait or subset of traits of an object to rate that object highly on other unrelated traits. In the present case, most RIK's were pleased with receiving separate rations and most BAS's with item-pricing. As a consequence, they may have reacted positively to other aspects of the dining facility not directly involved in the conversion to BAS/A La Carte. This is not to suggest, however, that these improvements in attitude should be disregarded. The fact remains that, despite the lack of actual changes, airmen said they were more pleased with the dining facility, service, and food after BAS/A La Carte than before.

These shifts in opinions toward specific dining service features stand in apparent contrast to the data depicted in Figure 2, which indicated no significant improvement between the Pre-Test and Post-Test II, for the RIK's, in their general opinion of the Loring facility in comparison to other Air Force dining halls. A plausible reason for this is depicted in Figure 4. Note with regard to the RIK's attitude toward each of the food features (weekend variety, weekday variety, short-order variety, quality, and quantity) that, despite the successive improvement from the Pre-Test to Post-Test I to Post-Test II, the mean ratings remained to the negative side of neutral, i.e., the Post-Test II RIK's remained dissatisfied with the food, although not as much as the Pre-Test RIK's. Since food features constitute the most important aspects of the dining facility for the consumer, it is not surprising that these airmen's view of the Loring facility in comparison to others in the Air Force did not improve significantly as a result of BAS/A La Carte.

In contrast to the RIK's, the BAS's comparative ratings of the Loring facility did improve with BAS/A La Carte. This, too, would be expected from their evaluation of the dining hall food (see Figure 4). At the Pre-Test, each of these mean ratings was to the negative side of neutral; whereas, at Post-Test II, each was to the positive side of neutral. Thus, their attitude toward the food turned from one of dissatisfaction to one of satisfaction as a result of continued experience with BAS/A La Carte, and this improvement was matched by increments in their overall evaluation of the Loring facility in comparison to other Air Force dining halls.

### Worker Interviews and Surveys

#### Demographic Data

The workers interviewed in Post-Test II covered a wide range of demographic characteristics similar to the Pre-Test and Post-Test I samples. As a matter of fact, 19 of the 25 (76%) civilian workers interviewed in Post-Test II had been interviewed in both Post-Test I and the Pre-Test. Four others were cashiers also interviewed in Post-Test I but who had no Pre-Test experience in the Loring dining facility. The Post-Test II civilian workers ranged in age from 22 to 60 and had food service experience (not necessarily Air Force food service) ranging from virtually none to 24 years of experience.

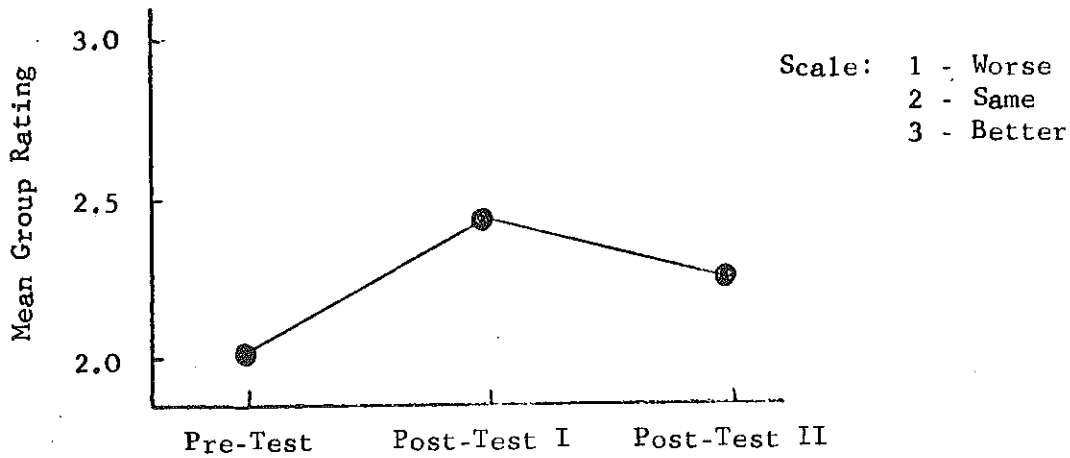
As might be expected, there was not as high an inter-test consistency among the military food service worker group, with only 8 of the 27 (30%) being repeat interviewees. The other 19, however, had all experienced the traditional food service system at other bases and had been at Loring for at least two months. Their ages ranged from 19 to 38 and their food service experience from a few months to over 20 years.

#### Effect of BAS/A La Carte on Workers' Opinions of That and the Traditional Military Food System

The question of which food system was preferred by the workers was addressed in three interview questions. One of these concerned the Pre-Test sample's feelings about what their job might be like under BAS/A La Carte and the two Post-Test samples' comparisons of the two work situations in terms of which was better or worse (Figure 7). Although the Post-Test samples responded on a 5-point scale, their answers were combined into a 3-point scale (1 = worse, 2 = same, 3 = better) for comparison with the Pre-Test samples. As can be seen, the mean Post-Test II rating (2.26) was intermediate between the neutral Pre-Test response (2.02) and the more positive Post-Test I response (2.42). Of the differences among the tests, only that between the Pre-Test and Post-Test I achieved statistical significance (16). The Post-Test II ratings by the military (2.24) and civilian (2.27) workers were virtually identical.

Figure 7

Mean Responses of Workers Comparing Their Jobs Under BAS/A La Carte and the Traditional System



In the Post-Test II interview, a response of better or worse was followed by an open-ended question as to why. As in the other previous tests, the most common response by civilians who felt that their job was better concerned there being less waste and, therefore, less to do (most civilians were assigned to clean-up and dish washing duties). The few civilians and those military workers who thought their job was worse echoed responses from the other tests about increased workloads.

Another question in both Post-Test interviews solicited workers' preferences for the BAS/A La Carte or traditional system. Post-Test I had produced responses overwhelmingly favoring the former with 83% of the military and 100% of the civilians preferring BAS/A La Carte (Table 4). Post-Test II results still showed a preference for BAS/A La Carte by 68% of the civilian and 67% of the military workers, although the decrease in worker preference from Post-Test I for the system was statistically significant (17).



Table 4

Percentage of Post-Test I and II Workers Expressing Preference for the BAS/A La Carte (B/A) and Traditional Food Service Systems

	<u>Civilian</u>		<u>Military</u>		<u>Combined</u>	
	I	II	I	II	I	II
Extremely Prefer B/A	92%	64%	63%	48%	76%	56%
Slightly Prefer B/A	8%	4%	20%	19%	15%	12%
No Preference	0	24%	10%	11%	6%	17%
Slightly Prefer Traditional	0	4%	7%	15%	3%	9%
Extremely Prefer Traditional	0	4%	0%	7%	0%	6%

Workers were also asked whether BAS/A La Carte had made their job easier or harder. The majority of civilian workers (61%) said that their job was easier or much easier than in the traditional system, while just over a quarter of them (26%) said it was about the same. The three who said it was much harder (13%) were all civilian cooks, not KP's. In contrast, only 28% of the military cooks said that their job was easier, or much easier while 36% rated it as about the same and 36% as harder or much harder. These ratings were not surprising since there was less waste for the civilian KP's to clean and more items for the cooks (both civilian and military) to prepare.

Regardless of their preferences between the two systems, the Post-Test II workers were asked what they felt was good and bad about BAS/A La Carte as implemented at Loring AFB. As in Post-Test I, most of the responses concerned things which were good about BAS/A La Carte. As a matter of fact, half of the 52 respondents claimed that nothing was bad. Only three types of negative comments were given by more than two workers; four workers (8%) being concerned that heavy eaters would run out of money, four saying there were not enough workers trained in running the system, and three (6%) complaining that there was much more work in the new system. Nearly half of the workers interviewed (44%) indicated that there was less waste in BAS/A La Carte, confirming the predictions of the Pre-Test sample and agreeing with the Post-Test I sample where 46% made the same statement. Other responses given by more than two Post-Test II workers included references to the larger variety than in the traditional system (9 workers, 17%), their feeling that some customers were saving money (8, 15%), their perception of an improvement in customer attitude toward both the worker and the food system (5, 10%), and their feeling that food quality was improved (3, 6%). Each of these positive aspects concerning BAS/A La Carte had also been specifically mentioned by Post-Test I respondents.

## Perception of the Effect of BAS/A La Carte on Customer Satisfaction

As in Post-Test I, the Post-Test II workers' views of the customers' reactions to BAS/A La Carte tend to provide corroboration and, in some instances, further amplification of the Post-Test II customers' responses discussed earlier.

In questions concerning attendance, most of the workers reported a perception of some decrease in attendance resulting from the change to BAS/A La Carte. This not only supports the contentions of the Post-Test II customers but also reflects actual attendance data. However, there was no expressed feeling among the workers of any substantial change in attendance since the initiation of BAS/A La Carte.

Approximately 75% of the Post-Test II customers felt that things could be done to increase general attendance in Air Force dining facilities. Just over half of the workers (56%) held the same positive opinion. As in Post-Test I, the workers had the same general suggestion as the customers about what could be done, with 16 workers (55% of those making a suggestion for improving attendance) referring to food variables, particularly variety. Eleven workers (38% of those making a suggestion) advocated the establishment of BAS/A La Carte at CONUS Air Force bases. Only one worker mentioned the dining facility environment.

Although the dining facility customers were not asked questions at Post-Test II about the effect of BAS/A La Carte on their food habits, the food service workers were asked about their perceptions of customer food habits. In Post-Test I, 87% of the workers had felt that the customers ate differently under BAS/A La Carte than they had before. Of the Post-Test II workers, 64% reported similar feelings. The types of food habit changes reported were similar to those in Post-Test I, including wasting less, eating less, and eating less expensive food items.

Following this general question, more specific questions were addressed to the workers in order to elicit more detailed opinions. When specifically asked, 76% of the civilian workers said that there was no change in the amount of food customers ate under BAS/A La Carte as compared to the traditional system, with 8% saying customers ate less, 4% saying more, and 12% not responding. The military workers were more evenly divided with 48% claiming no change, 33% saying the customers ate less, and 11% saying they ate more (7% not responding). While most workers, then, felt that there was no change, a substantial percentage (21%) felt that the customers were eating less.

Twenty-seven percent of the Post-Test II workers reported that BAS/A La Carte had produced changes in the foods the average customer ate in the dining hall. Most of those noting a change (71%) reported that the customers were eating a wider variety of foods.

Many of the workers (65%) perceived changes in the food habits of customers toward the end of the pay period. Specifically, 79% claimed that customers tended to eat less expensive foods. Six of these (18%) singled out hamburgers as the specific item ordered more often near the end of the pay period.

Finally, many of the workers (60%) felt that the food was better in the new system, citing as reasons such variables as increased variety and the smaller amounts prepared under BAS/A La Carte.

## CONCLUSIONS

1.) In general, no changes occurred from Post-Test I to II in airmen's opinion of the BAS/A La Carte dining system or in the effect this system had on airmen's food habits. A summary of these variables is contained in Table 5, along with an indication of whether they did change from Post-Test I to II and with the specific values obtained (separate values are given for BAS's and RIK's when they differ).

As shown there, most airmen preferred receiving separate rations, despite their general dissatisfaction with the amount provided. Opinions of item-pricing, particular among RIK's, were less supportive. (Some felt there was a better food/money ratio under the traditional meal-pricing system.) Reportedly, item-pricing had little to no effect on attendance in the dining hall, although converting RIK's to separate rations reportedly caused nearly half of them to attend less often. As before BAS/A La Carte, the main reason airmen reportedly did not eat in the dining hall more often involved conflicting meal habits which were given precedence over eating in the dining hall.

2.) The long-term effect of BAS/A La Carte on opinions of the Loring Air Force Base dining facility itself and its various food, environmental, and service features was somewhat more complex. Both BAS's and RIK's showed consistent, but small, increases from the Pre-Test to Post-Test I to Post-Test II in their ratings of various specific features of the food, service, and facility (sometimes when no corresponding change actually occurred). For the BAS's, these increases represented a shift from dissatisfaction to satisfaction for the majority of these features. Consequently, their ratings of this dining facility in comparison to others in the Air Force also improved from the Pre-Test to Post-Test I and remained positive at Post-Test II.

Even though the RIK's opinions of specific features improved over tests, their ratings at Post-Test II of the food features, the aspect of the dining facility most important to the consumer, remained to the negative side of neutral. As a consequence, their ratings of the Loring facility in comparison to others was not significantly greater at Post-Test II than at the Pre-Test.

Table 5

Summary of Variables Pertaining to BAS/A La Carte and Its Effect on Food Habits, Whether Their Values Changed From Post-Test I to II, and the Specific Values Obtained for the BAS's and the RIK's<sup>5</sup>

Variables	Change From Post- Test I to II	Values
1. Choice of Separate Rations Over Rations-In-Kind	No	RIK- 82% BAS-100%
2. Support for Policy Placing All Personnel on Separate Rations	No	RIK- 75% BAS- 75%
3. Changes in Food Habits Over the Pay Period	No	RIK- 38% BAS- 23%
4. Choice of Item-Pricing Over Meal-Pricing	No	RIK- 54% BAS- 74%
5. Effect of Item-Pricing on Attendance of RIK's and BAS's Combined	No	None - 75% Increase- 13% Decrease- 12%
6. Effect of Conversion to Separate Rations on RIK's Attendance	No	None - 49% Increase- 5% Decrease- 46%
7. Main Reasons for Nonattendance	No	Conflicting Habits: RIK- 32%; BAS- 58% Problems with Food: RIK- 23%, BAS- 22% Convenience: RIK- 24%; BAS- 12%
8. Amount Spent on Typical Lunch in the Dining Hall	RIK-No BAS-Yes	RIK- \$1.03 BAS- \$ .88 and \$1.09
9. Dissatisfied with Current Rations Allowance	No	RIK- 55% BAS- 75%
10. Amount Desired	No	RIK- \$3.36 BAS- \$3.98
11. Estimates of Daily Allowance, Percent of BAS's and RIK's Combined Not Knowing or Inaccurate by at Least \$.10	No	76%

<sup>5</sup> Values are given for Post-Test I and II only in one case where significant differences occurred. Otherwise, values are means of the two sets.

3.) This difference between BAS's and RIK's is likely related to their differential use of the dining facility, RIK's being the more regular patron. Since the purpose of the dining facility is primarily to meet the needs of these younger airmen, BAS/A La Carte can be considered, from a long-term basis, to have been an improvement but not a solution to the long-standing problems of providing these personnel with satisfying food-service.

4.) Sixty-eight percent of the Post-Test II workers preferred BAS/A La Carte to the traditional food system. Although they were more positive about BAS/A La Carte than the Pre-Test sample, they were less favorable than the Post-Test I sample. The most frequent worker responses concerning what was good about BAS/A La Carte included less waste, larger variety, customers saving money, and improved customer attitude.

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APPENDIX A

CONSUMER POST-TEST II INTERVIEW

APPENDIX A: CONSUMER POST-TEST II INTERVIEW

1. Unit
  2. Have we talked with you before or have you previously taken one of our written surveys about the dining hall here?
  3. How long have you been stationed here (11 mos.=Pre-Bas=0; 11 mos.=Post-Bas=1)
  4. Were you receiving separate rations before you came to Loring (...before they instituted this new BAS/A La Carte system? (no=0; yes=1)
  5. How old are you (to the nearest year)?
  6. How long have you been in the Air Force (to the nearest year)?  
0-10
  7. Are you planning to make a career of the military? (no=0; yes=1; uncertain=2)
  8. Are you married and currently living with your spouse? (no=0; yes=1)
  9. When you came in the Air Force, you made a contract with the Government. As part of this contract, they agreed to provide you with subsistence. In your case, they're doing this by giving you money, separate rations. They also provide the food and service in the dining hall. Now, taking all of these things into account, how satisfied are you with the efforts the Air Force has made to keep this part of the contract? Please use this chart to answer. (A)
- 
10. How many meals do you eat during a typical week, Monday through Sunday, regardless of where you eat them?
  11. During a typical week, where do you eat most of your meals?
  12. Are there any other places where you typically eat more than one meal a week? (If not, enter a Z.)
  13. How many meals do you eat in the dining hall during a typical week?  
0
  14. Have you eaten in the dining hall at all since last January when they instituted the BAS/A La Carte system? (no=0; yes=1)
  15. What is the one main reason you don't eat in the dining hall more often? (If there are none, enter a Z.)
  16. Are there any other reasons? (If not, enter a Z.)



17\* In a traditional dining hall, you would be charged a single price for your entire meal. Here at Loring, however, you are charged separately for the items you take. Does this item-pricing have anything to do with how often you eat in the dining hall? (no=0; yes=1)

1 18\* Do you go less often because of it or more often? (less=0; more=1)

19\* (Before they started the new BAS/A La Carte system...) Before you came to Loring, you had a meal card. Does the fact that you now receive separate rations have anything to do with how often you eat in the dining hall? (no=0; yes=1)

1 20\* Do you go less often because of it or more often? (less=0; more=1)

21. In general, is there anything the Air Force can do to increase peoples' attendance in the dining halls? (no=0; yes=1)

1 22. What is that?

1 23. Would your attendance increase if these changes were made?  
no=0; yes=1)

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24\* How much do you spend on a typical noon meal in the dining hall?

25. Do you know what the current daily separate rations allowance is? (no=0; yes=1)

1 26. What is it?

27. Is \$2.53 per day enough for you to eat adequately? Please use this chart to answer. (B)

1,2,4,5 28. According to your present eating habits, how much money would you need to eat adequately on a typical day?

29\* Would you prefer to remain on separate rations or to go back to subsistence-in-kind, where you are authorized to eat in the dining hall for free? Please use this chart to answer. (C)

30\* Why? (If there are no reasons, enter a Z.)

31\* What would you feel about an Air Force-wide change in which everybody, from the youngest airmen up, would be placed on separate rations, like it is here at Loring? Please use this chart to answer. (D)

any diff. 32. Why?

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\* Ask only of those who have eaten in the dining hall since BAS/A La Carte.

33. Do you find that you eat any differently toward the end of a pay period than at the beginning of the period? (no=0; yes=1)

1 34. What changes?

35. Do you eat any more or less often toward the end of a pay period than at the beginning of the period? (no=0; less=1; more=2)

36. Is the amount of money you pay for a meal any more or less toward the end of a pay period than at the beginning of the period? (no=0; less=1; more=2)

37. Do you eat in the dining hall any more or less often toward the end of a pay period than at the beginning of the period? (no=0; less=1; more=2)

38\* Do you prefer the present system in the dining hall where you pay item-by-item for the things you take or the previous system where you paid a flat price for the entire meal? Please use this chart to answer. (E)

39\* Why? (If there are no reasons, enter a Z.)

40\* Do you think that people leave any more or less food on their plates under the BAS/A La Carte system than under the traditional meal-pricing system? (no=0; less=1; more=2)

41\* Is the wait in line any shorter or longer now than before they changed to BAS/A La Carte? (no=0; shorter=1; longer=2)

1, 2 42\* Why is it shorter (longer)?

43\* How would you rate this dining hall in comparison to the dining halls at other installations? Please use this chart to answer. (F)

1, 2, 4, 5 44\* Why do you think it is better (worse)?

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APPENDIX B  
STATISTICAL ANALYSES

APPENDIX B: Statistical Analysis

- (1)  $\chi^2$  (2) = 10.51,  $p < .01$
- (2)  $\chi^2$  (4) = 13.47,  $p < .01$
- (3)  $F$  (1,409) = 81.64,  $p < .01$
- (4)  $F$  (1,377) = 11.67,  $p < .01$
- (5)  $\chi^2$  (3) = 12.35,  $p < .01$
- (6) Spearman Rank Correlations: BAS -  $r = .91$   
RIK -  $r = .97$
- (7)  $t$  (69) = 3.47,  $p < .01$ , two-tailed
- (8)  $t$  (69) = 2.61,  $p < .01$ , two-tailed
- (9)  $t$  (103) = 3.17,  $p < .01$ , two-tailed
- (10) BAS- $t$  (63) = 2.86,  $p < .01$ , two-tailed  
RIK- $t$  (88) = 3.54,  $p < .01$ , two-tailed
- (11)  $t$  (66) = 4.06,  $p < .01$ , two-tailed
- (12)  $t$  (88) = 2.73,  $p < .01$ , two-tailed
- (13) Variety of Food (week-end) -  $F$  (1,494) = 31.84,  $p < .01$   
Variety of Food (weekday) -  $F$  (1,507) = 30.66,  $p < .01$   
Monotony of Facility -  $F$  (1,510) = 8.62,  $p < .01$   
Quality of Food -  $F$  (1,508) = 29.62,  $p < .01$   
Quantity of Food -  $F$  (1,508) = 7.44,  $p < .01$   
Variety of Food (Short Order) =  $F$  (1,507) 38.22,  $p < .01$   
Hours of Operation -  $F$  (1,507) = 17.51,  $p < .01$   
General Environment -  $F$  (1,506) = 22.89,  $p < .01$   
Military Atmosphere -  $F$  (1,510) = 6.92,  $p < .01$
- (14)  $t$  (26) = 3.10,  $p < .01$ , two-tailed
- (15) Sign-test, 14 pairs, 3 deviations -  $p < .03$
- (16)  $\chi^2$  (2) = 9.95,  $p < .01$
- (17)  $\chi^2$  (2) = 8.85,  $p < .02$

APPENDIX C

CONSUMER POST-TEST II INTERVIEW RESPONSES

APPENDIX C: Consumer Post-Test II Interview Responses

Contained in this appendix is a detailed account of BAS and RIK airmen's responses to open-ended interview questions in Post-Test II. Presented are the response frequencies. It should be noted that a number of the questions allowed more than one response, and the totals, therefore, sometimes exceed the number of respondents (54 BAS's and 56 RIK's). See Siebold, et al, 1975, for comparative responses from the Pre-Test and Post-Test I.

Question: Reason(s) for selecting separate rations or rations-in-kind.  
(Only asked of RIK's)

Separate Rations

Convenient	2
Flexibility in Where to Eat	16
Flexibility in When to Eat	5
Flexibility in What to Eat	6
Flexibility in Spending Money as Desired	6
Conforms to Current Eating Habits	2
Money is Lost If on Meal Card	14
Save Money on Separate Rations	4
Has Caused Improved Food in Dining Hall	1
Miscellaneous	5

Rations in Kind

Difficulty in Budgeting Separate Rations	1
Lose Money on Separate Rations	2
Get More to Eat	2
Don't Have to Worry About Meal Money	3
Miscellaneous	1

Question: Reason(s) for opposing policy placing all personnel on separate rations. (Only asked of those in opposition.)

	RIK	BAS
Some Cannot Budget and Would Be Without Money	3	7
Persons Should Have Choice		2
Too Much Hassle	1	1
Personally Prefer RIK	5	
Miscellaneous	1	

Question: Changes in Food Habits Over Pay Period

	RIK	BAS
Eat More	2	1
Eat in Dining Hall More Often	2	
Eat Lower Quality Food	1	1
Eat Less Expensive Food	5	3
Eat Fewer Meals	2	1
Eat Less at Meals	6	3
Eat Less in General	6	3
Miscellaneous	2	4

Question: Where are most meals eaten, and where else is at least one meal per week eaten.

	RIK		BAS	
	Main	Other	Main	Other
<u>Private Residence</u>				
Home	8	2	33	1
Friend's Home	3	8	1	1
Barracks	9	4	1	1
Room (Off-Base)	2	5	2	8
Bag Lunch	1	1		3
<u>Other Installation Facility</u>				
Dining Hall	22	20	8	19
NCO Club	4	8	4	10
Base Operations Snack Bar	1	3		1
Mobile Truck		2		2
Bowling Alley Snack Bar		1	1	2
Miscellaneous	1	1		1
<u>Off-Base Facility</u>				
McDonalds		22		8
Pizza Kitchen		4		
Other Pizza Parlors		2		1

Rondevous		7	1	7
Youseff's		5		1
Miscellaneous Specific Restaurants	2	3		2
Unspecified Restaurants	2	3	3	
Miscellaneous	1			

Question: Main, and other reason(s) for not eating in dining hall more often.

	<u>RIK</u>		<u>BAS</u>	
	Main	Other	Main	Other
<u>Convenience</u>				
Dining Hall Hours	1	1	1	1
Inconvenient	4	4	5	2
Location of Dining Hall	3	4	1	
<u>Dining Hall Food</u>				
Variety (in general)	5	2		2
Intra-Meal Variety		1		
Inter-Meal Variety	2	2	2	1
Taste		1		2
Quantity	1	1		
Nutrition			2	
Temperature	2	1		2
Quality (in general)	2	1	2	
Preparation Quality	1	1		
Raw Food Quality	1	1		
Specific Food(s)		1		
Miscellaneous	1	3	3	
<u>Dining Hall Environment</u>				
General Atmosphere		1		1
Military Atmosphere	2	2		
No Music	1	1		
Lines	1	1		2
Monotony	4		1	1
Miscellaneous			1	

Question: Why this dining hall is better or worse than others.

	<u>RIK</u>	<u>BAS</u>
<u>Better</u>		
Atmosphere	2	5
Decor	5	4
Variety (in general)	1	2
Intra-Meal Variety	2	2
Inter-Meal Variety	1	
Item-Pricing	1	12



Allowed separate rations	1	
BAS/A La Carte System	1	2
Food Quality	2	2
Food Preparation	4	
Server's Attitude	1	4
Miscellaneous	5	3

Worse

Service	3	3
Variety (in general)	6	2
Intra-Meal Variety	4	1
Inter-Meal Variety	2	
Food Quality	7	
Food Preparation	6	3
Atmosphere	3	1
Decor	1	1
Food Quality	3	1
Food Taste	4	
Item-Pricing	1	
Being Placed on Separate Rations	1	
Miscellaneous	5	3

Question: Changes which would increase attendance in dining hall

	<u>RIK</u>	<u>BAS</u>
<u>Convenience</u>		
Dining Hall Hours		1
Inconvenience		1
Location	3	2
<u>Dining Hall Food</u>		
Variety (in general)	8	2
Intra-Meal Variety	2	2
Inter-Meal Variety	8	2
Taste		
Quantity	3	
Nutrition		
Temperature	3	
Quality (in general)	3	1
Preparation Quality	6	3
Raw Food Quality	2	
Specific Food(s)	1	
Miscellaneous	3	
<u>Dining Hall Environment</u>		
General Atmosphere	4	6
Military Atmosphere	3	4
Furnishings	1	1
Music	5	4

Monotony	1	
Miscellaneous	4	2
<u>Service</u>		
Attitude	4	3
Speed	1	3
Miscellaneous	1	2
<u>Food System</u>		
Increase Separate Rations Rate		1
Continue All-BAS Policy		3
Civilian Operation of Dining Hall	1	
Revert to Meal Cards	3	3
Miscellaneous Rule Change	1	1
Allow Civilian Guests	3	
Special Meals		4
Continue Item-Pricing		5
<u>Expense</u>		
	3	5
<u>General Miscellaneous</u>		
		3

Question: Reason(s) for item- or meal-pricing.

	<u>RIK</u>	<u>BAS</u>
<u>Item-Pricing</u>		
Paying for Only What is Wanted	7	13
Dining Hall Prices Were Good		1
Save Money	3	1
Less Food Waste	4	6
Can Get Seconds When Desired	1	3
Less Expensive	7	3
Can Eat Only What is Wanted	9	8
Greater Variety of Food	2	5
Miscellaneous	3	4
<u>Meal-Pricing</u>		
More Food per Dollar	9	3
Free Seconds	3	4
Item-Pricing Costs Too Much	4	2
Complete Meals	1	1
Less Hassle	1	
Miscellaneous	8	3