

A STUDY OF THE NUTRITIVE VALUE AND COST OF FOOD
CONSUMED BY CERTAIN ORGANIZED GROUPS OF COLLEGE STUDENTS

by

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INTRODUCTION

In the last few years a great deal has been done to educate the public to the importance of diet in the maintenance of health. Since food is recognized as an important factor in the life of the individual, it seems desirable to give some thought to the college student, who spends four years in school at a period in his life when diet is of particular importance since, for the most part, he is still growing. The adequacy of his diet will have not only a decided effect upon his success as a student but upon his future success and well-being.

The purpose of this study was to add to the body of knowledge concerning the cost and nutritive value of the food consumed by certain groups of college students. It was hoped that this survey would also be of practical value to the groups concerned as well as to other similar groups.

REVIEW OF WORK IN THE FIELD

Atwater (1), studying dietaries in public institutions in 1901, concluded that such investigations were of practical value not only to the groups studied but to other groups feeding large numbers of people. He found that the meals served to the patients in an insane asylum provided an

average of 85 grams of protein and 2450 Calories per person per day.

In 1903 Bailey (2) made a dietary study of 2 student clubs at Lawrence, Kansas. In both of these he found the fuel value of the diets was high due to the use of large amounts of fat and carbohydrate in proportion to protein. The average daily caloric value of the meals served was 3923 and 3437 Calories respectively. As a result of his investigation he suggested a more liberal use of protein-rich foods.

Two years later Mallinckrodt (13) studied the diets of Harvard University students, many of whom were limited as to funds. The investigation revealed that his subjects were receiving less protein and energy than were considered desirable for men of sedentary habits. For the three 2-week experimental periods the 10 students acting as subjects consumed 2964 Calories and 86 grams of protein per man per day at an average cost of 37.9 cents. As a rule, these men were as strong mentally at the end of the experiment as at the beginning and most of them had gained in weight and strength during the investigation. However, the question was raised whether in the future some effects of underfeeding might be apparent.

In 1917, Borthwick (7) sent questionnaires to several college halls for women to learn whether the meals served

supplied the necessary food nutrients and also to obtain information in regard to the cost of the different classes of foods. As only one answer was received she concluded that very little was being done in this respect. The results of her own investigation, at one of the halls for women at Montana State College, for a period of 8 days, showed an average daily consumption of 2549 Calories per capita. The protein, calcium, and phosphorus were apparently adequate for the needs of the groups studied, but iron was slightly below the accepted standard. The average cost of the meals was 37 cents per person per day. The distribution of cost among the various food groups indicated that sufficient money was being spent for meat, eggs, sweets, and fruits, whereas, too little was being expended on grain products, vegetables, milk, cream, and cheese.

In this same year Macleod and Griggs (12) made a dietary study at Vassar College to obtain data on the amount, kind, and quality of food consumed by the women in one residence hall for a period of a month. They found that each student consumed on the average, 2698 Calories daily. The protein food furnished 398 Calories; carbohydrate, 1048; and fat, 1252 per person per day. The "extra food" data obtained showed that 65 per cent of these students supplemented their meals by some additional food.

In 1920, Bevier (5) made a careful dietary study of 12 groups of students of the University of Illinois. The groups consisted of sorority, church, and cooperative houses. The survey extended over a period of 7 days. Calculations made from the data collected from 9 of the 12 organizations revealed that these students received fairly satisfactory amounts of both Calories and protein from the meals served. The daily consumption per capita ranged from 2038 to 3023 with an average of 2419 Calories while the protein averaged 69.5 grams. She learned that less than a pint of milk and very little cream were consumed per person per day; also that 75 per cent of these people did not eat breakfast and that the lack of food was not made up until lunch as "extra foods" were not eaten until the afternoon.

Grundmeier (8), studying food habits of 20 groups of Kansas State College students in 1926 found that the protein and probably the energy were adequate in the diets in all of the groups studied, though in some cases the Calories were low when compared with the usually accepted standard. When measured by Sherman's standard the calcium was inadequate in 70 per cent and the iron and phosphorus in 50 and 60 per cent of the groups respectively. She concluded that doubtless the low calcium intake was due to inadequate milk consumption which was 0.21 quart per person per day. The

average daily food cost was found to be 35.6 cents per capita.

Hawley (10) investigated and summarized the results of a number of college dietary studies. She states: "The results of 12 investigators are brought together for comparison with 2 studies including 227 institutions made by the U. S. Department of Agriculture in 1918 and 1926 and an investigation of 23 institutions made at the State College of Washington in 1926." All of these diets were analyzed for cost, energy, protein, calcium, phosphorus, and iron.

According to Sherman's (17) standard of nutrition the more recent diets yielded slightly more energy, a third more protein, and from 7 to 26 per cent more calcium, phosphorus, and iron than were actually needed. As compared with the 12 previous studies reported in the literature, they were somewhat lower in energy, protein, calcium, and iron whereas the phosphorus was unchanged. The distribution among the various food groups indicates that, on the whole, meat, fish, eggs, fatty foods, and sweets were used in ample quantities for a well-balanced diet, whereas too little milk, cream, cheese, fruits, and vegetables were used. The diets planned by dietitians were more nearly adequate in every respect than those planned by untrained people.

In 1929 Benedict and Farr (3) made an individual dietary

study in the college community of Durham, New Hampshire to determine the energy and the protein content of a large number of individual foods and of mixed meals. Their results showed that each of 34 dinners eaten at the college cafeteria furnished from 517 to 1610 Calories and from 10 to 60 grams of protein according to the type of meal chosen. At the commercial restaurants in the same community 29 dinners each supplied from 456 to 805 Calories and from 19 to 43 grams of protein. At the same time meals served at the Home Economics Practice House averaged 2450 Calories and 61 grams of protein per person per day for a period of 1 week.

At the Kansas State College of Agriculture and Applied Science Trump (18) studied the effect of supervision of planning of meals and the purchasing of food on the dietary practices and food expenditures of organized groups. She found that the food requirement of such groups could be met at a cost of from 40 to 50 cents per person per day if trained workers planned, purchased, and supervised the food preparation. The food served furnished calcium and phosphorus in adequate amounts when a pint of milk per capita per day was consumed but when less milk than this was used the calcium requirement was not met.

In 1931 Benedict and Farr (4) studied the edible food waste in sorority and fraternity houses for different lengths of time. In a men's group for a period of one week they

found this to average 11 per cent of the energy and 10 per cent of the protein content of the total food served. In a women's group the edible waste of energy and of protein for lunches and dinners served over a period of 2 weeks was 3 and 4 per cent respectively. In a second sorority 4 students kept individual records for the same factors for a period of 1 month. These results showed that from 12 to 21 per cent of the energy and from 11 to 24 per cent of the protein of the total food served was wasted.

More recently Ryder (16) and Littleford (11) made a study of food served in the college hall for women at Kansas State College of Agriculture and Applied Science. They determined the edible food waste and found it to be 25.1 per cent of the energy and 19.3 per cent of the protein of the total food served. Their subjects consumed an average of 1822 Calories, 56.1 grams protein, 0.79 grams calcium, 1.20 grams phosphorus, and 0.012 grams iron each day.

PROCEDURE

A dietary study was made of a group of 10 student organizations, consisting of 6 fraternities and 4 sororities, at the Kansas State College of Agriculture and Applied Science. The survey extended over the month of April, 1932.

After interviewing the Faculty Committee dealing with

student organizations, contact was made with the faculty advisor for each group concerned, then with the president or business manager or both. After obtaining their approval of the project the cook and usually the house mother for each organization selected were visited and the purpose of the study and the plan of procedure explained.

A weighed inventory which included the amount and cost of all food on hand was made at the beginning and again at the end of the period. A weight record of all food purchased during the month was obtained from the bills which, as a rule, were collected every 2 or 3 days. In a few cases where the records were particularly reliable they were collected only once a week. The amount of food on hand at the first inventory was added to the food purchased during the period. From this the amount of food on hand at the close of the experiment was subtracted. It was assumed that the difference represented the food consumed during the period by the group. The cost of the food was also determined.

The making of the inventory was facilitated by the use of special blanks, a sample of which may be seen on page 11. Provision was made on these for recording the brand, amount, size or weight of container, unit cost, and total cost of each article of food. For convenience in collecting and calculating data the foods were divided into groups as

DAIRY PRODUCTS

KINDS	:AMOUNT:	COST PER UNIT:	TOTAL COST
Cheese	:	:	:
Cheddar	:	:	:
Cottage	:	:	:
Cream	:	:	:
Eggs	:	:	:
Milk (dried)	:	:	:
Milk (canned)	:	:	:
Milk (whole)	:	:	:
	:	:	:
	:	:	:
	:	:	:
	:	:	:
	:	:	:
	:	:	:
	:	:	:
	:	:	:
	:	:	:
	:	:	:

FATS

KINDS	:AMOUNT:	COST PER UNIT:	TOTAL COST
Butter	:	:	:
Cod liver oil	:	:	:
Lard or substitutes	:	:	:
Oil	:	:	:
Oleomargarine	:	:	:
	:	:	:
	:	:	:
	:	:	:
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follows: fresh, cured, and canned meat and fish; dairy products; butter and other fats; sugars and other sweets; fresh, canned, and dried vegetables; fresh, canned, and dried fruits; breakfast cereals; bread, crackers and pastry; flour and meal; nuts; and miscellaneous.

In order to get an estimate of the "extra foods" eaten, printed forms (page 13) were distributed and collected each week, one for each member of each organization. From these records the types of food eaten, the frequency of eating, and the number and percentage partaking of food between meals were determined.

Copies of menus used during the experiment were collected for eight of the groups. The other two were unable to furnish this information.

Each group kept a record of the meals and the number of people served at each meal, including guests and helpers. The forms used are shown on page 14.

The Hawley (9) short method for calculating dietaries was used for computing results. It has been proven that the nutritive value of the diet can be calculated by the short method with results within 5 per cent of those obtained when the long item-by-item method is used.

Hawley (9) classifies the foods into 10 groups according to their nutritive value as follows: (1) foods that are

EXTRA FOOD EATEN

Date	Food	:Approximate : Amount

SHEETS USED FOR ESTIMATING EXTRA FOODS EATEN

NUMBER OF MEALS SERVED

	Regular Members			
Date	Breakfast	Lunch	Dinner	Guests
:	:	:	:	:
:	:	:	:	:
:	:	:	:	:
:	:	:	:	:
:	:	:	:	:
:	:	:	:	:
:	:	:	:	:
:	:	:	:	:
:	:	:	:	:
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:	:	:	:	:
:	:	:	:	:
:	:	:	:	:

SAMPLE OF FORM USED FOR RECORDING NUMBER OF MEALS SERVED

relatively better sources of calcium than of protein, phosphorus, and iron; (2) foods in which all of the nutrients are of about the same relative importance; (3) foods in which iron is of relatively more importance than the other 3 nutrients; (4) foods in which calcium is relatively low and the other 3 nutrients high; (5) foods that are lacking or practically lacking in the 4 nutrients; (6) animal foods in which calcium is relatively low, protein high, and phosphorus and iron intermediate; (7) foods in which calcium is relatively high, iron low, and protein and phosphorus intermediate; (8) foods in which protein and phosphorus are relatively high and calcium and iron low; (9) vegetable foods in which calcium is relatively low, protein high, and phosphorus and iron intermediate; and (10) foods in which protein is relatively higher than the other 3 nutrients.

A few foods are not provided for in the short-cut method, i.e., those not completely analyzed for the 5 food nutrients and those very different in composition or lacking some of the necessary constituents. The value of the nutrients of these foods is calculated by the long method, then added to the total.

From the Calorie and protein-mineral values given the Calorie pounds and mineral-protein pounds were calculated. These totals were then used in computing total energy in

Calories and the grams of protein, calcium, phosphorus, and iron consumed by the groups.

RESULTS AND DISCUSSION

The nutritive value of the diets of the 6 fraternities and the 4 sororities included in this study may be seen in Tables I - X inclusive. The average Calorie consumption of these groups, indicated in Table XI, was 3419 Calories per day. This is somewhat higher than Sherman's accepted standard of 3000 Calories per day for a 70 kilogram man. The lowest consumption per capita per day was 2454 and the highest was 4550 Calories. The average amount consumed daily by the 4 sororities ranged from 2454 to 3213 Calories for the different groups and averaged 2822 Calories each. The average number of Calories consumed daily by the 6 fraternities was 3816 per capita, the range in Calorie consumption for these men's groups being from 2805 to 4550 Calories per person per day.

The difference in Calorie consumption between the men's and the women's groups may be assumed according to Sherman (17) to be due chiefly to differences in body composition, size of subjects, and type and amount of muscular work engaged in by the respective individuals.

The protein standard set by Sherman of 10 to 15 per cent of the total Calories from protein or of 2.5 grams of

TABLE I
 ORGANIZATION I (FRATERNITY)
 NUTRITIVE VALUE OF DIET

Food Group	Energy Calories	Protein gm.	Calcium gm.	Phos- phorus gm.	Iron gm.
1	18,147	416	20.79	16.63	0.208
2	49,486	878	11.97	25.53	0.303
3	152,250	4,030	26.87	107.46	2.418
4	95,712	7,121	35.60	94.94	1.662
5	619,255	345	5.37	5.37	0.077
6	352,620	16,409	9.61	175.81	2.579
7	219,537	9,236	338.65	261.34	0.616
8	32,420	2,096	4.66	23.76	0.116
9	59,520	1,997	9.99	56.59	0.566
10	242,848	8,870	17.39	73.04	0.783
Extra	172,595	5,223	28.30	56.46	0.732
Total	2,014,390	56,621	509.20	896.93	10.060
Per man per day	4,550	128	1.15	2.01	0.021
Per 3000 Calories	3,000	84	0.76	1.32	0.013

Total cost ----- \$217.48

Cost per man per day --- 0.48

Cost per 3000 Calories - 0.31

TABLE II
 ORGANIZATION II (FRATERNITY)
 NUTRITIVE VALUE OF DIET

Food Group	Energy Calories	Protein gm.	Calcium gm.	Phos- phorus gm.	Iron gm.
1	3,057	80	3.99	3.19	0.040
2	14,630	332	4.52	9.66	0.115
3	107,240	2,936	19.58	78.30	1.762
4	84,528	6,849	34.25	91.32	1.598
5	484,925	279	4.34	4.34	0.062
6	246,970	14,816	8.68	158.74	2.328
7	188,901	9,429	345.75	264.02	0.629
8	2,000	720	1.60	8.16	0.040
9	85,632	2,774	13.87	78.61	0.786
10	425,744	16,226	31.82	133.63	1.432
Extra	52,055	649	10.60	9.60	0.397
Total	1,695,682	55,090	479.00	839.57	9.189
Per man per day	2,805	90.9	0.78	1.38	0.015
Per 3000 Calories	3,000	97	0.83	1.47	0.016

Total cost ----- \$123.42

Cost per man per day --- 0.20

Cost per 3000 Calories - 0.21

TABLE III
 ORGANIZATION III (SORORITY)
 NUTRITIVE VALUE OF DIET

Food Group	Energy Calories	Protein gm.	Calcium gm.	Phos- phorus gm.	Iron gm.
1	19,689	562	28.11	22.49	0.281
2	27,234	596	8.13	17.35	0.206
3	71,300	2,106	14.04	56.15	1.293
4	37,984	2,668	13.34	35.57	0.622
5	320,845	99	1.54	1.54	0.022
6	186,150	12,202	7.15	130.73	1.917
7	148,545	7,041	258.16	197.14	0.469
8	5,290	390	0.87	4.42	0.022
9	33,056	1,015	5.07	28.75	0.287
10	111,488	3,880	7.61	31.95	0.342
Extra	120,142	2,818	24.15	29.51	0.304
Total	1,081,723	33,377	368.17	555.60	5.765
Per man per day	2,454	75.6	0.81	1.26	0.013
Per 3000 Calories	3,000	92	0.99	1.54	0.015

Total cost ----- \$139.01

Cost per man per day --- 0.30

Cost per 3000 Calories - 0.36

TABLE IV
 ORGANIZATION IV (SORORITY)
 NUTRITIVE VALUE OF DIET

Food Group	Energy Calories	Protein gm.	Calcium gm.	Phos- phorus gm.	Iron gm.
1	55,911	1,549	77.46	61.97	0.775
2	82,890	1,532	20.90	44.58	0.529
3	204,780	6,137	40.91	163.65	3.682
4	106,864	7,805	39.02	104.06	1.821
5	933,940	563	8.75	8.75	0.125
6	449,440	28,594	16.75	306.36	4.493
7	254,736	10,407	381.61	291.41	0.694
8	30,285	1,994	4.43	22.59	0.111
9	41,744	1,427	7.13	40.43	0.404
10	417,232	15,306	30.01	126.05	1.350
Extra	402,576	8,411	79.02	136.13	0.738
Total	2,980,398	83,725	705.99	1,305.98	14.722
Per man per day	3,219	90	0.75	1.41	0.015
Per 3000 Calories	3,000	84	0.70	1.31	0.014

Total cost ----- \$423.00

Cost per man per day --- 0.45

Cost per 3000 Calories - 0.42

TABLE V
 ORGANIZATION V (FRATERNITY)
 NUTRITIVE VALUE OF DIET

Food Group	Energy Calories	Protein gm.	Calcium gm.	Phos- phorus gm.	Iron gm.
1	24,408	836	41.78	33.42	0.418
2	85,668	1,522	20.75	44.27	0.526
3	242,650	6,977	46.51	186.05	4.186
4	201,728	14,131	70.66	188.42	3.297
5	945,420	478	7.44	7.44	0.106
6	600,810	35,963	21.06	385.32	5.651
7	196,053	8,065	295.72	225.83	0.538
8	30,445	3,759	8.35	42.61	0.209
9	76,400	1,796	8.98	50.88	0.509
10	317,840	11,249	22.06	92.64	0.993
Extra	364,456	6,798	59.58	85.64	1.647
Total	3,085,878	91,574	602.89	1,342.51	18.080
Per man per day	3,930	114	0.75	1.71	0.022
Per 3000 Calories	3,000	87	0.57	1.30	0.016

Total cost ----- \$379.10

Cost per man per day --- 0.48

Cost per 3000 Calories - 0.37

TABLE VI
 ORGANIZATION VI (FRATERNITY)
 NUTRITIVE VALUE OF DIET

Food Group	Energy Calories	Protein gm.	Calcium gm.	Phos- phorus gm.	Iron gm.
1	24,258	570	28.48	22.79	0.285
2	47,626	970	13.28	28.33	0.336
3	152,880	4,531	30.21	120.84	2.719
4	144,864	10,906	54.53	145.41	2.545
5	835,765	466	7.25	7.25	0.104
6	410,430	25,804	15.11	276.47	4.055
7	166,437	6,341	232.43	177.49	0.423
8	66,725	6,539	14.53	74.10	0.363
9	50,400	2,172	10.86	61.54	0.615
10	417,840	15,168	29.74	124.91	1.338
Extra	278,314	5,408	59.60	109.60	1.321
Total	2,595,539	78,875	496.02	1,148.73	14.104
Per man per day	4,152	126	0.78	1.83	0.021
Per 3000 Calories	3,000	91	0.56	1.32	0.015

Total cost ----- \$286.74

Cost per man per day --- 0.45

Cost per 3000 Calories - 0.32

TABLE VII
 ORGANIZATION VII (FRATERNITY)
 NUTRITIVE VALUE OF DIET

Food Group	Energy Calories	Protein gm.	Calcium gm.	Phos- phorus gm.	Iron gm.
1	28,500	753	37.66	30.12	0.377
2	44,682	788	10.75	29.93	0.272
3	124,500	3,702	24.68	98.73	2.221
4	97,312	7,323	36.62	97.64	1.709
5	512,435	219	3.41	3.41	0.049
6	217,840	15,268	8.94	163.58	2.399
7	218,760	7,206	264.20	201.76	0.480
8	14,915	930	2.07	10.54	0.052
9	23,680	888	4.44	25.16	0.252
10	265,744	9,846	19.31	81.09	0.869
Extra	133,725	4,052	16.29	54.32	0.553
Total	1,682,093	50,975	428.37	796.28	9.233
Per man per day	3,954	117	0.99	1.86	0.021
Per 3000 Calories	3,000	88	0.75	1.41	0.015

Total cost ----- \$200.37

Cost per man per day --- 0.45

Cost per 3000 Calories - 0.34

TABLE VIII
 ORGANIZATION VIII (SORORITY)
 NUTRITIVE VALUE OF DIET

Food Group	Energy	Protein	Calcium	Phos-	Iron
	Calories	gm.	gm.	gm.	gm.
1	19,530	594	29.68	23.74	0.297
2	29,470	776	10.59	22.58	0.268
3	122,490	3,319	22.13	88.51	1.991
4	76,128	5,750	28.75	76.66	1.342
5	397,565	283	4.40	4.40	0.063
6	138,250	10,535	6.17	112.88	1.656
7	142,389	6,824	250.21	191.07	0.455
8	15,420	1,484	3.30	16.82	0.082
9	25,728	703	3.51	19.91	0.199
10	270,128	10,205	20.01	84.04	0.900
Extra	152,097	3,347	40.44	46.33	1.345
Total	1,389,145	43,820	419.19	686.94	8.598
Per man per day	2,568	81	0.75	1.27	0.016
Per 3000 Calories	3,000	94	0.87	1.48	0.018

Total cost ----- \$157.98

Cost per man per day --- 0.29

Cost per 3000 Calories - 0.33

TABLE IX
 ORGANIZATION IX (SORORITY)
 NUTRITIVE VALUE OF DIET

Food Group	Energy Calories	Protein gm.	Calcium gm.	Phos- phorus gm.	Iron gm.
1	48,081	1,382	69.10	55.28	0.691
2	59,754	1,148	15.65	33.39	0.396
3	150,390	4,386	29.24	116.96	2.632
4	75,472	5,453	27.26	72.70	1.272
5	299,460	252	3.92	3.92	0.056
6	336,630	20,964	12.28	224.61	3.294
7	154,968	5,097	186.91	142.73	0.340
8	17,520	3,360	7.47	38.08	0.187
9	22,000	848	4.24	24.02	0.240
10	162,704	6,186	12.13	50.94	0.546
Extra	278,696	4,426	66.38	70.53	0.740
Total	1,605,675	53,502	434.58	833.16	10.394
Per man per day	3,048	99	0.81	1.56	0.018
Per 3000 Calories	3,000	97	0.79	1.53	0.017

Total cost ----- \$266.29

Cost per man per day --- 0.48

Cost per 3000 Calories - 0.47

TABLE X
 ORGANIZATION X (FRATERNITY)
 NUTRITIVE VALUE OF DIET

Food Group	Energy Calories	Protein gm.	Calcium gm.	Phos- phorus gm.	Iron gm.
1	51,381	1,486	74.31	72.22	0.903
2	86,708	1,581	21.56	46.00	0.546
3	187,160	5,738	38.25	153.01	3.443
4	107,712	8,674	43.37	115.66	2.024
5	908,635	639	9.94	9.94	0.142
6	514,070	29,931	17.53	320.69	4.703
7	376,440	15,910	583.36	445.48	1.061
8	19,790	2,426	5.39	27.50	0.135
9	44,848	1,376	6.88	39.00	0.390
10	515,312	19,900	39.02	163.88	1.756
Extra	261,973	5,999	56.74	68.91	0.713
Total	3,074,029	93,660	896.35	1,462.29	15.816
Per man per day	3,507	105	1.02	1.65	0.018
Per 3000 Calories	3,000	89	0.87	1.41	0.015

Total cost ----- \$383.76

Cost per man per day --- 0.44

Cost per 3000 Calories - 0.37

TABLE XI

THE AVERAGE NUTRITIVE VALUE AND COST PER DAY
OF DIETS OF TEN STUDENT ORGANIZATIONS

Organization	Average No. Served	Energy Calories	Pro- tein	Cal- cium	Phos- phorus	Iron	Cost	Cost per 100 Calories
			gm.	gm.	gm.	gm.		
I. Fraternity	16.60	4550	128.0	1.15	2.01	0.021	\$0.48	\$0.011
II. Fraternity	19.70	2805	90.9	0.78	1.38	0.015	0.20	0.007
III. Sorority	15.01	2454	75.6	0.81	1.26	0.013	0.30	0.012
IV. Sorority	32.60	3219	90.0	0.75	1.41	0.015	0.45	0.014
V. Fraternity	28.50	3930	144.0	0.75	1.71	0.022	0.48	0.012
VI. Fraternity	21.80	4152	126.0	0.78	1.83	0.021	0.45	0.011
VII. Fraternity	14.80	3954	117.0	0.99	1.86	0.021	0.45	0.011
VIII. Sorority	18.60	2568	81.0	0.75	1.27	0.016	0.29	0.011
IX. Sorority	18.15	3048	99.0	0.81	1.56	0.018	0.48	0.016
X. Fraternity	28.60	3507	105.0	1.02	1.65	0.018	0.44	0.013
Average for Fraternities	21.67	3816	118.5	0.91	1.76	0.020	0.42	0.011
Average for Sororities	21.09	2822	86.4	0.78	1.38	0.016	0.38	0.012
Per 3000 Calories		3000	92.9	0.75	1.40	0.016	0.35	0.012
Sherman's Standard per 70 kg. man		3000	67.0	0.68	1.32	0.015		

protein per 100 Calories was exceeded in each organization. The average consumption was 105.9 grams per capita per day or calculated on the 3000 Calorie basis, it amounted to 92.9 grams per person per day. These figures, though apparently high, were computed on the A.P. (as purchased) weight. No allowance was made for edible waste though it is known that a certain amount existed. Ryder (16) and Littleford (11) reported from a study made on the same campus a loss of 19.3 per cent for edible protein for a group of college women. Benedict and Farr (4) found the loss of edible portion for a fraternity group totaled 10 per cent of the total Calories served. Similarly, had such figures been available for this study, the protein actually consumed would doubtless have been lowered considerably. (Table XII)

The quality of the protein was, for the most part, good. The chief sources were meat, milk, cheese, eggs, and dried legumes. The average number of eggs consumed per person per day was 1.15, with a range of 0.5 to 1.48 for the various groups.

Milk was not used as freely by most groups as is ordinarily recommended. The average daily consumption per person was only 0.36 quart or approximately 1 1/3 cups. The group using the most milk consumed only 0.51 quart per capita per day whereas the lowest fell to 0.17 quart.

The average calcium consumption for the 10 organizations

TABLE XII

CALCULATED ENERGY AND PROTEIN CONTENT OF EDIBLE FOOD WASTE OF DIETS

Groups	Including Edible Waste		Corrected for Edible Waste			
	Energy	Protein	Benedict and Farr*		Ryder and Littleford**	
	Calories	grams	Calories	grams	Calories	grams
I. Fraternity	4550	128.0	4050	115.2	3408	103.3
II. Fraternity	2805	90.9	2496	81.8	2101	73.4
III. Sorority	2454	75.6	2184	68.0	1838	61.0
IV. Sorority	3219	90.0	2865	81.0	2411	72.6
V. Fraternity	3930	144.0	3498	129.6	2944	116.2
VI. Fraternity	4152	126.0	3695	113.4	3110	101.7
VII. Fraternity	3954	117.0	3519	105.3	2962	94.4
VIII. Sorority	2568	81.0	2286	72.9	1923	65.4
IX. Sorority	3048	99.0	2713	89.1	2283	79.9
X. Fraternity	3507	105.0	3121	94.5	2626	84.7

* Deducting 11 per cent for energy and 10 per cent for protein.

** Deducting 25.1 per cent for energy and 19.3 per cent for protein.

was 0.86 gram per capita per day or 0.75 gram when calculated on the 3000 Calorie basis, i.e., the adult male unit. It is to be noted that this is somewhat above the Sherman standard of 0.68 gram per capita per day for the average man weighing 70 kilograms. The groups receiving the most calcium were those consuming considerable quantities of milk and ice cream--both excellent sources of this mineral. The importance of calcium as a body builder and regulator should not be over-looked, therefore, it is especially desirable that those who have not yet completed their growth receive an abundance of this food nutrient.

The average daily intake per capita of phosphorus for the groups surveyed was 1.59 grams as compared with Sherman's standard of 1.32 grams per 70 kilogram man per day. Of the 10 groups studied only 2 sororities failed to reach this level, i.e., groups III and VIII whose average consumption was 1.26 and 1.27 grams of phosphorus per capita per day respectively. This, however, was doubtless ample for such a group since it was above the standard for the average woman. When all of these groups were converted into adult male units it appeared there was a surplus of phosphorus in their diets when no allowance is made for edible waste.

An average of 0.018 gram of iron per capita per day was consumed by the 10 organizations, which is 0.003 gram above

Sherman's recommendation of 0.015 gram. Of the 10 groups, 9 reached the standard or were above for this mineral on the basis of the actual number of Calories served, though some of the high-Calorie groups were low when the diets were converted into adult male units. However, organization III, a sorority, showed an iron consumption of only 0.013 gram per person per day which was 0.002 gram below the standard. Their actual requirement was met, however, since the standard is 50 per cent above the requirement thus allowing an ample margin of safety. This mineral was supplied largely through the use of fresh green vegetables, eggs, and lean meat. These foods rich in iron were used quite freely by the majority of the groups.

The range of cost for food per man per day for the 10 organizations was from 20 to 48 cents with an average of 40 cents per capita per day over a period of one month. Computed on the 3000-Calorie basis the average cost was 35.6 cents per person per day while the cost per 100 Calories ranged from 0.7 to 1.6 cents with an average of 1.2 cents. This is somewhat lower than the 1.56 cents per 100 Calories found by Grundmeier (8) at a time when food prices were higher, the difference being 0.36 cent. It is reasonable to assume that these costs were somewhat higher than the average spent for food throughout the year, as this study was made during the season when fresh fruits and vegetables

were rather high in price. In order to tempt the appetite and for the sake of variety some of those planning the menus felt justified in using these more expensive foods to a certain extent.

Meat and Fish.--Each of the 10 groups spent less for meat and fish on the basis of percentage of total food cost than the average of 32.19 per cent given by Sherman (17) for these foods. Although meat and fish are good sources of protein this food nutrient can be secured in less expensive form and these dietaries are to be commended in this respect. The average amount expended by all of the groups for these foods was 22.38 per cent. The range of the total food expenditure for the month for the 4 sororities was from 19.79 to 23.56 with an average of 21.67 per cent. The range for the men's groups was greater, varying from 20.19 to 28.67 with an average of 22.85 per cent of the total amount spent for food.

Eggs.--The amount spent for eggs in the average American dietary as noted by Sherman (17) is 5.47 per cent of the total food cost, whereas these groups showed an average expenditure of 2.62 per cent for eggs for the period, which is somewhat below the above figure. The men's groups used 2.96 per cent of the total spent for food for eggs, while only 2.12 per cent was expended for this food by the

TABLE XIII

AVERAGE PERCENTAGE DISTRIBUTION OF COST OF FOOD

Organization	: Meat : and : Fish	: Milk : and : Eggs	: Cheese	: Cream	: Butter : and : Ice : Other : Fats	: Grain : Products	: Sugars : and : Other : Sweets	: Vege- : tables	: Fruit	: Nuts	: Misc.
	: per : cent	: per : cent	: per : cent	: per : cent	: per : cent	: per : cent	: per : cent	: per : cent	: per : cent	: per : cent	: per : cent
I. Fraternity	:24.91	:2.91	:11.34	:2.46	:10.69	:11.03	:4.96	:14.09	:12.09	:1.24	:4.28
II. Fraternity	:20.19	:4.90	:16.35	:0.00	:11.34	:22.62	:5.96	:11.41	:4.01	:0.24	:2.98
III. Sorority	:21.56	:1.38	:13.56	:4.78	:4.81	:6.88	:6.38	:24.76	:13.25	:0.65	:1.99
IV. Sorority	:21.78	:2.18	:5.42	:6.51	:9.19	:9.84	:4.63	:20.27	:15.64	:0.67	:3.87
V. Fraternity	:28.67	:2.35	:5.38	:3.86	:8.44	:9.70	:5.33	:21.11	:10.84	:0.63	:3.69
VI. Fraternity	:21.54	:2.43	:6.05	:3.22	:12.26	:12.63	:5.93	:18.93	:12.59	:1.68	:2.74
VII. Fraternity	:20.40	:2.60	:9.12	:1.39	:15.59	:8.68	:3.08	:19.63	:13.90	:0.80	:4.81
VIII. Sorority	:19.79	:3.09	:10.11	:6.17	:9.20	:12.33	:5.51	:19.38	:9.98	:0.65	:3.79
IX. Sorority	:23.56	:1.81	:3.64	:6.36	:9.00	:7.82	:3.89	:20.50	:16.39	:1.80	:5.23
X. Fraternity	:21.41	:2.56	:9.99	:3.41	:12.36	:13.35	:2.69	:16.52	:14.26	:1.05	:2.40
Average	:22.38	:2.62	:9.10	:3.82	:10.29	:11.49	:4.84	:18.66	:12.30	:0.94	:3.58
Average for Fraternities	:22.85	:2.96	:9.71	:2.39	:11.78	:13.00	:4.66	:16.95	:11.28	:0.94	:3.48
Average for Sororities	:21.67	:2.12	:8.18	:5.96	:8.05	:9.22	:5.10	:21.23	:13.81	:0.94	:3.72
Standard*	:32.19	:5.47	:10.59	:	:9.55	:18.29	:4.57	:10.55	:5.31	:0.15	:3.33

* Average of 224 dietary studies of typical American families.

TABLE XIV

PER CAPITA CONSUMPTION OF CERTAIN CLASSES
OF FOODS DURING ONE MONTH

Organization	Meat	Fresh Vegetables except Potatoes and	Potatoes	Fresh Fruit except Citrus	Canned and Fresh Tomatoes and Citrus	Grain Products	Eggs	Milk
	lb.	lb.	lb.	lb.	lb.	lb.	No.	qt.
I. Fraternity	17.72	6.16	25.66	6.05	5.75	15.76	1.36	0.51
II. Fraternity	11.06	1.39	24.11	0.10	2.22	20.58	1.25	0.46
III. Sorority	12.08	10.33	12.22	5.28	5.77	6.95	0.50	0.46
IV. Sorority	14.53	8.00	18.50	4.31	8.22	10.94	0.80	0.27
V. Fraternity	21.20	7.21	25.51	7.67	3.53	11.49	1.25	0.24
VI. Fraternity	19.36	6.31	17.83	7.55	7.02	17.25	1.33	0.23
VII. Fraternity	17.12	15.72	23.00	8.04	11.01	16.99	1.48	0.42
VIII. Sorority	9.42	10.05	18.14	3.35	5.25	12.70	1.08	0.32
IX. Sorority	19.00	13.90	23.30	6.28	12.89	9.03	1.11	0.17
X. Fraternity	16.78	10.38	16.32	6.64	8.97	17.53	1.35	0.49
Average	15.83	8.95	20.46	5.53	7.06	13.92	1.15	0.36

women's groups. According to the rule, "an egg per person per day," these organizations reached this level for the most part with a daily average of 1.15 eggs per capita. However, groups III and IV, both sororities, used only 0.5 and 0.8 egg per day per person respectively, a number somewhat below the average desired. While the actual money expended for eggs was low the average amount consumed per capita was probably adequate. This can doubtless be explained by the fact that the price of eggs was unusually low at the time this study was made.

Milk.--According to Sherman (17) milk may be regarded as "important as a source of energy, protein, mineral elements, and vitamins." He also says it is "the most efficient of all foods in making good the deficiencies of grains and in insuring the all-round adequacy of the diet." Of the 10 groups included in the experiment only 1 reached the level generally advised of 1 pint of milk daily for each adult. As previously stated, the average milk consumption was 0.36 quart per day per person, the average for the men's groups being 0.39 quart and for the women's organizations 0.31 quart per capita daily. The amount of milk consumed by the sororities ranged from 0.17 quart or less than 1 cup per capita to 0.46 quart daily per person, while for the men's groups the amount varied from 0.23 quart to 0.51 quart per day.

The cost of milk, cheese, and ice cream for all of the groups averaged 12.92 per cent of the total amount spent for food. However, groups IV and IX spent more for ice cream than was expended for milk and cheese. Group IX consumed only 0.17 quart of milk per person per day but used 6.36 per cent of the total spent for food for ice cream. This increased their milk consumption accordingly.

Fats.--Butter and other fats including cream were consumed in rather large quantities by most of the groups. The average percentage spent for fats was 10.29 or slightly more than the average reported by Sherman (17) of 9.55 per cent of the total cost. Group III, the only one of the 10 to fall very short of this level, showed an expenditure of 4.81 per cent for these foods. The fat consumption for the entire group ranged from 4.81 to 15.59 per cent of the total food cost. Oleomargarine was used by 4 of the 10 groups but organization I, a fraternity, was the only group that used it to any great extent. It, therefore, seems reasonable to assume that butter was used entirely for table purposes, since even in group I the amount of butter used was considerable. This is desirable since butter is not only an easily digested fat but a rich source of vitamin A.

Grain products.--This class of foods was used rather sparingly by some of the groups surveyed. The cost of the grain products consumed varied from 6.88 per cent to 22.62

per cent of the total spent for food by the 10 organizations. The average was 11.49 per cent of the total food cost; the average expenditure for the women's groups was 9.22 per cent and for the men's groups 13.00 per cent of the total cost. Whole grain cereals, including whole wheat and graham bread, were used less than ordinarily would be recommended.

Sugars and other sweets.--The sugars and other sweets are primarily sources of energy. As a rule, this class of foods was used generously by these groups. The average expenditure was 4.84 per cent which, in spite of the difference in price, is slightly higher than Sherman's (17) figure for 224 representative American families of 4.57 per cent of the total amount spent for food. The men consumed, on the average, somewhat less of this type of food than the women, though the difference is probably too small to be significant.

Fruits and vegetables.--In no group studied did the amount spent for vegetables fall below the Sherman (17) average of 10.55 per cent of the total food expenditure, and in most of the 10 groups it was considerably more than this. It ranged from 11.41 per cent to 24.76 per cent of the entire amount spent for food. The majority of these products were somewhat cheaper at the time this survey was made than they were for the period of the studies covered by Sherman's report.

In only 1 organization of the 10 studied did the sum

spent for fruit fail to reach the 5.31 per cent of the total expended for food as given by Sherman (17). Group II, a fraternity, spent only 4.01 per cent of their total food budget for fruits; the amount spent by the other 9 groups was rather high, ranging from 9.98 to 16.39 per cent of the total. Sherman (17) recommends that at least as much should be spent for fruits and vegetables as for meats, poultry, and fish. This standard was reached in all groups except one. The fact that 9 of the 10 organizations used such large quantities of fruits and vegetables in their diets was commendable since they are highly important as sources of mineral elements and vitamins.

Nuts.--Nuts, an excellent source of energy and a splendid meat substitute, were used to an appreciable extent by each of the 10 groups. The amount spent for this commodity was in excess of the average quoted by Sherman (17) of 0.15 per cent. The average for these 10 organizations was 0.94 per cent with a range of from 0.24 to 1.8 per cent of the total expenditure for food. The average for the men's and women's groups was in both cases 0.94 per cent of the total food cost.

Miscellaneous.--In this list were included, coffee, cocoa, gelatin, jelly, meat relishes, salad dressings, and foods of similar nature. The average cost of this group of foods was 3.58 per cent of the total, which is slightly above

Sherman's (17) figure of 3.33 per cent. The range in cost for these commodities was considerable and also the type of foods in this group varied in popularity with the different organizations.

Vitamins.--Sherman (17) suggests that "The presence of sufficient amounts of vitamins in the dietary is best assured by giving ample prominence to those foods which are known to be good sources, notably milk and its products, eggs, vegetables, and fruits." Doubtless the organizations included in this investigation received sufficient quantities of vitamin A as liberal use was made of vitamin A-rich foods, as green vegetables, eggs, or butter.

Lean meat, a source of vitamins B and G, was used freely by most of the groups whereas glandular organs were eaten comparatively little. Had the latter been used oftener they would have insured a more ample supply of vitamins in the diet. Other good sources of vitamin G are milk, eggs, and cheese. These were fairly well represented in these diets. Whole grain cereals which are rich in vitamin B were used more sparingly by the majority of the organizations studied than is considered desirable.

Vitamin C is found in abundance in the citrus fruits and tomatoes. Since 9 of the groups studied used either one or both of these foods liberally, it is reasonable to conclude that their diets were adequate in this respect. How-

ever, the diet of group II doubtless was low in this vitamin.

Of all the foods eaten eggs are probably the best source of vitamin D because of their universal use. Certain fish also supply it in generous amounts whereas milk contains but little of this vitamin as a rule. The amounts received from a diet containing the above foods are ordinarily sufficient to protect the adult provided he is frequently exposed to the sun's rays or their equivalent. It is probable that the amount of vitamin D was rather limited in these diets. No record is available concerning the time exposed to ultra violet rays or of cod liver oil consumed by the various subjects so no more definite statement can be made.

Extra foods.--It was impossible to get accurate data on the between meal foods, but the information that was secured (Table XV) was interesting and helpful and suggestive of the amount and kind of food eaten between meals by college students. It also indicated to some degree the number indulging in this practice. Of the 10 organizations included in the investigation, 8 reported their "extra food" intake. However, the information was not obtained for each member of these organizations. From 38 to 96.3 per cent of the members of these 8 groups reported.

Group VI, a fraternity, served on the average 21.8 men per day. Of this number 21 men or 96.3 per cent of those served submitted "extra foods" reports. These men ate

TABLE XV

FREQUENCY OF IN BETWEEN MEAL EATING AND TYPES OF FOOD USED

Organization	:Average: :Number : :Served : :per Day:	Total : Number : :Reporting:	: Per cent : Reporting:	: Times per: : Week per : : Person :	: Types of Foods Eaten in Order : of Preference
	:	:	:	:	:Cold drinks, sandwiches, ice
I. Fraternity	: 16.60 :	: 11.0 :	: 66.20 :	: 3.97 :	:cream, doughnuts, coffee, candy :bars, pie, rolls
	:	:	:	:	:Candy, cold drinks, ice cream,
II. Fraternity	: 19.70 :	: 7.5 :	: 38.07 :	: 4.10 :	:sandwiches, fruit, rolls, pop- :corn, pie
	:	:	:	:	:Cold drinks, cookies, cake, can-
III. Sorority	: 15.01 :	: 12.0 :	: 79.00 :	: 4.39 :	:dy bars, ice cream, sandwiches, :fruit, nuts, popcorn
	:	:	:	:	:Cold drinks, sandwiches, candy
IV. Sorority	: 32.60 :	: 19.0 :	: 58.20 :	: 5.05 :	:bars, cake, cookies, fruit, ice :cream, popcorn, coffee, nuts
V. Fraternity	: 28.50 :	No Report			
	:	:	:	:	:Cold drinks, sandwiches, candy
VI. Fraternity	: 21.80 :	: 21.0 :	: 96.30 :	: 5.82 :	:bars, ice cream, fruit, coffee, :cookies, cake, nuts
	:	:	:	:	:Candy bars, cookies, cake, sand-
VII. Fraternity	: 14.80 :	: 9.75 :	: 66.00 :	: 3.25 :	:wiches, cold drinks, coffee, :fruit, ice cream, pie
	:	:	:	:	:Cold drinks, doughnuts and cook-
VIII. Sorority	: 18.60 :	: 8.5 :	: 45.00 :	: 6.70 :	:ies, sandwiches, candy bars, ice :cream, popcorn, coffee, fruit
IX. Sorority	: 18.15 :	No Report			
X. Fraternity	: 28.60 :	Did not eat between meals			

on an average 5.82 times per week per person for the month. Group VIII, a sorority, showed a greater frequency of eating, 6.7 times per week per person for the month. However, only 45 per cent or 8.5 women of the 18.6 persons served in this group reported. The type of food eaten was similar in each of the 10 societies. Cold drinks headed the list.

Then, in order of the frequency of consumption, were sandwiches, candy bars, ice cream, cake, cookies and doughnuts, fruits, and other soda fountain foods. Group VI, a fraternity of which 21 men reported, consumed during the month of the experiment 428 cold drinks, 187 sandwiches, 117 candy bars, 73 dishes of ice cream and 58 fruits with lesser quantities of coffee, pie, cookies, cakes, and nuts.

Menus.--Menus for the 3 meals served during the period were obtained from 8 of the 10 organizations represented in this study. Of these the meals were planned by the house mother for 4 of the groups, by the cook for 2, and by a trained dietitian for the remainder. In 3 instances the menus were made for a period of one week in advance, in the remaining 5 they were planned each day.

It is believed that an adequate diet should yield sufficient energy, protein, calcium, phosphorus, and iron to meet the accepted standards. Also the vitamin content of

the foods served should not be neglected in planning meals. Some of the diets apparently did not provide for a whole grain cereal, a pint of milk, an egg, and citrus fruit or tomatoes once a day as is commonly recommended.

A survey of the meals planned for these groups showed that they received sufficient meats and vegetables in most cases. The diets furnishing the most Calories varied considerably as to content. Some groups apparently secured the extra Calories by a free use of grain products, others by increased use of meats, fats, cheese, sugar, or nuts. In the low-Calorie diets a similar variation was found. As a rule, the fraternities used more meat, eggs, milk, cheese, fat, and grain products whereas vegetables, fruits, sugars, and other sweets including ice cream, were used more generously by the sororities.

Since it was desired to learn how much cost affected the desirability of the food offered, typical menus of 4 of the groups for a period of 3 days, excluding Sunday, were chosen to represent different cost levels per 100 Calories. These may be seen in Tables XVI - XIX inclusive. These were 1.6, 1.4, and 1.1 cents respectively and represented a high, medium, and a fairly low-cost dietary. No menus were available for the least expensive diet which cost only 0.7 cents per 100 Calories. In order to include both fraternities and sororities, the fourth group was used as otherwise only

TABLE XVI

TYPICAL MENUS PLANNED BY DIETITIAN FOR A SORORITY

Average daily per capita cost per 100 Calories - 1.6 cents

<u>Breakfast</u>	:	<u>Lunch</u>	:	<u>Dinner</u>
French toast	:	Veal stew with vege-	:	Breaded pork tender-
Syrup or honey	:	tables	:	loin
Stewed prunes	:	Baking powder bis-	:	Browned sweet pota-
Coffee or cocoa	:	cuits	:	toes
	:	Butter	:	Grapefruit salad
	:	Preserves	:	Assorted rolls
	:	Baked cup custard	:	Butter
	:	Tea	:	Fresh pineapple
	:		:	Strawberry cup
	:		:	Angel food cake
	:		:	
	:		:	
Sliced orange	:	Bacon and eggs	:	Stuffed beef heart
Choice of cereal	:	Bran muffins	:	Creamed potatoes
Buttered toast	:	Preserves	:	Stewed tomatoes
Coffee or cocoa	:	Apricot, peach, cot-	:	Cabbage-celery-apple
	:	tage cheese salad	:	salad
	:	Graham-cracker-date	:	Bread
	:	roll	:	Butter
	:	Milk	:	Cherry pie
	:		:	Coffee
	:		:	
	:		:	
Graham muffins	:	Baked beef hash	:	Sirloin steak
Preserves	:	Browned potatoes	:	French fried potatoes
Shredded wheat	:	Creamed wax beans	:	Creamed corn
Grapefruit	:	Carrot-raisin salad	:	Celery curls
Coffee or cocoa	:	Bread	:	Radishes
	:	Butter	:	Bread
	:	Plum sauce	:	Butter
	:	Milk	:	Fresh fruit cup
	:		:	Cookies
	:		:	

TABLE XVII

TYPICAL MENUS PLANNED BY HOUSE MOTHER FOR SORORITY

Average daily per capita cost per 100 Calories - 1.4 cents

<u>Breakfast</u>	:	<u>Lunch</u>	:	<u>Dinner</u>
Bran muffins	:	Spaghetti	:	Breaded pork steak
Jam	:	Pineapple salad	:	Au gratin potatoes
Grapefruit	:	Bread	:	Corn
Coffee or cocoa	:	Cakes	:	Perfection salad
	:	Coffee	:	Pineapple sherbet
	:		:	Chocolate cake
	:		:	
	:		:	
Fried eggs	:	Shrimp salad	:	Meat pie
Toast	:	Baked sweet potatoes	:	Creamed new potatoes
Butter	:	Bread	:	and peas
Jam	:	Butter	:	Mixed fruit salad
Coffee or cocoa	:	Green gage plums	:	Bread
	:		:	Butter
	:		:	Cocoanut pie
	:		:	
	:		:	
Grapefruit	:	Stuffed peppers	:	Pork roast and gravy
Cinnamon rolls	:	Fried potatoes	:	Mashed potatoes
Jam	:	Whole wheat rolls	:	Wax beans
Coffee or cocoa	:	Butter	:	Lettuce and tomato
	:	Jam	:	salad
	:		:	Bread
	:		:	Butter
	:		:	Ice cream
	:		:	

TABLE XVIII

TYPICAL MENUS PLANNED BY HOUSE MOTHER FOR SORORITY

Average daily per capita cost per 100 Calories - 1.1 cents

<u>Breakfast</u>	:	<u>Lunch</u>	:	<u>Dinner</u>
Grapefruit	:	Macaroni and cheese	:	Veal roast and gravy
Sweet rolls	:	Cabbage salad	:	Mashed potatoes
Coffee	:	Bread	:	Green beans
	:	Butter	:	Tomato and cucumber
	:	Jam	:	salad
	:	Orange and cocoanut	:	Bread
	:	dessert	:	Butter
	:		:	Apple pie
	:		:	Cheese
	:		:	
	:		:	
Cinnamon toast	:	Meat hash	:	Salmon croquettes
Breakfast food	:	Hot biscuits	:	Creamed potatoes
Coffee or cocoa	:	Butter	:	Peas
	:	Jam	:	Celery and lettuce
	:	Fruit	:	salad
	:		:	Bread
	:		:	Butter
	:		:	Apricots
	:		:	Cookies
	:		:	
	:		:	
Coffee cake	:	Creamed eggs on buns	:	Veal pie
Breakfast food	:	Bread	:	Boiled potatoes
Oranges	:	Butter	:	Carrots
Coffee or cocoa	:	Jam	:	Cold slaw
	:	Pickles	:	Bread
	:	Rice	:	Butter
	:		:	Jelly
	:		:	Cherries
	:		:	

TABLE XIX

TYPICAL MENUS PLANNED BY COOK FOR A FRATERNITY

Average daily per capita cost per 100 Calories - 1.1 cents

<u>Breakfast</u>	:	<u>Lunch</u>	:	<u>Dinner</u>
Grapefruit	:	Sauerkraut and	:	Roast beef and gravy
Prepared breakfast cereal	:	wieners	:	Mashed potatoes
Toast	:	Fried potatoes	:	Harvard beets
Butter	:	Vegetable stew	:	Fried parsnips
Jelly	:	Raisin bread	:	Pineapple salad
Coffee	:	Butter	:	Bread
	:	Bread pudding	:	Butter
	:		:	Peaches
	:		:	Cookies
	:		:	Coffee
	:		:	
Rhubarb sauce	:	Sandwiches	:	Fresh roast ham
Choice of cereals	:	Creamed lima beans	:	Mashed potatoes
French toast	:	Potato salad	:	Baked apples
Coffee	:	Cherries	:	String beans
	:		:	Bread
	:		:	Butter
	:		:	Pickles
	:		:	Cakes
	:		:	Fruit
	:		:	
Bacon and eggs	:	Sliced corned beef	:	Breaded pork chops
Cinnamon rolls	:	Scalloped potatoes	:	Mashed potatoes
Prepared breakfast cereal	:	Boiled cabbage and ham	:	Scalloped corn
Fresh fruit	:	Bread	:	Bread
Coffee	:	Butter	:	Butter
	:	Jelly	:	Pickles
	:	Radishes	:	Fruit jello
	:	Bread pudding	:	Cookies
	:		:	Coffee
	:		:	

menus of sororities would be represented.

These meals were planned by a trained dietitian, 2 house mothers, and a cook, so also indicated the effect upon choice of food of different types of training. Though the dietitian definitely planned to meet the food needs of her groups she was sometimes hampered by certain prejudices on the part of the members who frequently requested that certain desirable foods be omitted from the diet. For instance, one group asked that fruit be omitted from their breakfast menus in order to save money. The amount thus saved from the food budget was applied to their building fund. However, milk and fruit were always available for those who desired them.

The others planning meals also appeared to be anxious to feed their groups properly. As a rule, the menus indicate that they succeeded in supplying suitable food for the most part.

SUMMARY

A dietary study of the weighed inventory type was made of 10 organized Kansas State College groups, consisting of 6 fraternities and 4 sororities. The purpose of the study was to secure information concerning the nature of the food eaten by college students. The money expended for food by these organizations was also estimated. The Calorie consumption and the intake of protein, calcium, phosphorus, and iron were

calculated. The vitamin content of the foods eaten by these groups was also considered. Partial records were obtained for "extra foods" eaten. The edible waste was not calculated.

All the organizations studied, with possibly one exception, received sufficient Calories.

All diets apparently met the usually accepted standards for protein, calcium, phosphorus, and with one exception, for iron. When the diets were calculated to a basis of 3000 Calories per man per day they supplied enough protein and phosphorus to balance the Calories. On this same basis the diets were adequate for iron.

Green vegetables were well represented in 5 of these dietaries.

With 2 exceptions, citrus fruits and tomatoes were used liberally.

The average daily consumption of milk per capita was 0.36 quart.

Meat was used in sufficient quantities by all of the groups; however, glandular organs could have appeared in the diets more often.

In 9 of the groups the cost of the food per 100 Calories ranged from 1.1 to 1.6 cents. In the other group the cost averaged only 0.7 of a cent per 100 Calories.

It would seem from this study that "extra foods" are a factor to be considered since the records indicate that they

are frequently used by these college students and that they are of a type that furnish numerous Calories.

Before these figures can be regarded as fully indicative of the food actually eaten by the groups concerned, it will be necessary to make allowance for edible waste and for the "extra foods" eaten.

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