

Indian Research Fund Association

DIET SURVEY
IN
COLLEGE AND SCHOOL
HOSTELS IN DELHI

by

Dr. K. L. SHOURIE, B.Sc., M.B.B.S. (Punjab),
M.Sc. (Madras), M.D.S.

Nutrition Research Laboratories,
Coonoor.

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The main object of diet surveys is to discover the defects in diets and to indicate the changes and improvements necessary from the standpoint of nutrition. In India attention has been paid to diet surveys and about 150 diet surveys have been carried out in the past decade or so. The Nutrition Advisory Committee of the Indian Research Fund Association has watched the progress of diet surveys very carefully. A paper entitled, "A Note on the Results of Diet Surveys", was prepared by Dr. W. R. Aykroyd, Director, Nutrition Research Laboratories, Coonoor (S.I.) in 1939. On the recommendation of the Nutrition Advisory Committee this note is being brought up to date by the inclusion of results of surveys carried out since that date.

The present position is that diet surveys have provided a general picture of dietary habits in many parts of the country and Provincial Governments can, on their own, or under the aegis of the Central Government, initiate at once long term or short term agricultural policies to obtain adequate food supplies which will be both plentiful and nutritious.

To obtain a true picture of the diet and dietary habits of 400 million people of this subcontinent, many more surveys will have to be carried out for in India—the people in different parts of the country have varied diets and dietary predilections.

The United Nations Conference on Food and Agriculture stressed the importance of studying the diets of adolescents, school and pre-school children, infants and nursing and pregnant mothers, because these groups are particularly vulnerable to the ill effects of diets deficient in quantity or quality.

The present enquiry was undertaken on the suggestion of the Hon'ble Sardar Sir Jogendra Singh that diet surveys should be carried out in School and College hostels in Delhi with a view to improving where necessary existing dietary practice.

Diet Surveys.

The surveys were carried out in the following way :

The various hostels were visited each day for seven days in the morning and in the evening. At each visit uncooked food was weighed before cooking. Intake of the principal foodstuffs per consumption unit has been worked out. Intake of calories, proximate principals, various mineral elements, and vitamins have also been calculated. For calculating intake of calories, etc. the tables given in Health Bulletin No. 23 were used. Consumption units were calculated according to the following scale recommended in Health Bulletin No. 23.

	Coefficient
Adult male (over 14 years)	1·0
Adult female (over 14 years)	0·8
Child 12 and 13 years	0·8
Child 10 and 11 years	0·7
Child 8 and 9 years	0·6
Child 6 and 7 years	0·5
Child 4 and 5 years	0·4

In all the diets of 1,093 persons comprising 932·8 adult male units were studied. The persons whose diets were studied may be grouped as given in Table I.

TABLE I.

Groups studied

I.		No. of persons	No. of consumption units
	Colleges		
	<i>A. Girls.</i>		
	(a) Lady Hardinge Medical College		
	1. Cosmopolitan mess	16	12·0
	2. Vegetarian mess.	48	38·4
	3. Non-vegetarian mess	19	15·2
	4. Muslim mess	23	18·4
	5. Sikh mess	30	24·0
	(b) Indraprastha College for girls	41	34·0
	(c) Lady Irwin College for girls	115	93·2
	<i>B. Boys.</i>		
	(a) University hostel	69	69
	(b) Saint Stephen College		
	1. Vegetarian mess	84	84
	2. Non-vegetarian mess	90	90
	(c) Hindu College hostel	74	74
II.	Schools.		
	<i>C. Girls.</i>		
	(a) Victoria School hostel	96	70·8
	(b) St. Elizabeth hostel	81	56·9
	(c) St. Mary's Home	36	23·8
	<i>D. Boys.</i>		
	(i) A. V. Jain Middle School hostel	114	93·8
	(ii) Delhi United Christian School		
	(a) Stephen Thomas hostel	71	63·4
	(b) St. Paul's hostel	86	71·9

N.B.—In the Lady Hardinge and Lady Irwin Colleges the weighing of foodstuffs and collection of the other necessary data was carried out by Mrs. Powel and Mrs. Pillay.

ECONOMIC STATUS.

Groups A and B in the above table were college students. They generally belong to the higher middle or well-to-do class and according to their economic status spend more money on food-stuffs than most of the lower middle class families can afford to. Expenses per consumption unit per month for different institutions are given in tables III to VI.

Groups C and D were composed of school children. These children come from various economic strata. In the present investigation only the schools attended by children from very poor families were included.

State of nutrition of the school children surveyed.

A diet survey of three school hostels was carried out. A nutritional survey of two out of three schools (one boys' and one girls') was carried out to find out the

incidence of various deficiency diseases. Out of the 391 children examined 7 showed the presence of Bitot's spots. No other deficiency disease was found.

The preparation and cooking of food.

- (i) Whole cereal (wheat) is ground into flour and is usually made into chapatties.
- (ii) Pulses are boiled with water and made into porridge (dal) and consumed with chapatties.
- (iii) Peeled vegetables or meat are fried with fat—animal or vegetable—along with spices for quite a long time and then boiled in water.

In some institutions soda is added during the preparation of pulses or vegetables to make them soft in a short time.

The composition and nutritive value of diets.

Table II records the allowances of principal foodstuffs in the diet recommended by the United Nations' Conference on Food and Agriculture as also allowances recommended by the Director, Nutrition Research Laboratories, Coonoor (S.I.) in Health Bulletin No. 23 for an average adult male.

A study of Tables III to VI, which show the mean intake of the principal foodstuffs in the various groups studied, leads to the following observations :

- (i) Wheat was the main item in the diet of all the groups.
- (ii) In groups A and B (Tables III and IV) the intake of milk and milk products was reasonably high though the figure of 21 ozs. per consumption unit per day recommended by United Nations' Conference on Food and Agriculture was reached in one group only.
- (iii) In the case of groups C and D (school children) the amount of milk included in the diets was very small.
- (iv) The intake of leafy vegetables in all the groups was very small.
- (v) The diets are inadequate in respect of fruits in all the groups though one or two groups in the Lady Hardinge College approximate to the desideratum.
- (vi) In the case of the school children the intake of fat also is low.

Table VII gives the yardsticks for intake of calories, proximate principals, calcium, phosphorous, iron and vitamins.

In tables VIII to XI are shown the chemical compositions of various diets consumed in the different institutions surveyed.

Mean calorie intake per consumption unit per day ranges from 2,142 to 2,693 in school children and 2,447 to 3,935 in college students. According to modern standards the calorie intake is on the low side among school children (Groups C and D in tables VIII and IX).

Dr. Aykroyd recommends 2,600 calories per consumption unit per day for an adult Indian. He further suggests that in the case of hard working agriculturists as well as for North India "a somewhat higher scale would perhaps be appropriate". It is interesting to note that the above falls in line with the consumption in ancient India. The following interesting anecdote may give some idea about the calorie intake in the "good old days". It is recorded* that Bhagat Kabir once felt hungry and rebelled against God, when in this state he is reported to have recited the following in Punjabi. Below is an English translation*.

* Max Arthur Macanliffe—The Sikh Religion, Its Gurus, Sacred writings & authors Vol. VI Sorath XI p. 222.

“ A hungry man cannot perform service ;
 Take back this rosary of Thine.
 I only ask for the dust of the saint's feet,
 Since I owe not any man.
 O God, how shall I fare if I am shamed before Thee ?
 If thou give me not of Thine accord, I will beg for it.
 I beg for two seers* of flour,
 A quarter seer of clarified butter and salt,
 I beg for half a seer of dal.
 Which will feed me twice a day. ”

The above diet provides about 3,990 calories.

Total protein consumption appears to be satisfactory, but the proportion of animal protein leaves something to be desired. In this connection the Commission of the League of Nations reported as follows :—

“ During growth, pregnancy and lactation, some animal protein is essential and in the growing period it should form a larger proportion of the total protein ”. The intake of animal protein, which is of higher biological value than vegetable protein, varies in different institutions. Animal protein is generally low in groups on vegetarian diets. In these groups the amount of animal protein can be increased by the inclusion of whole, skimmed or butter milk. In this connection a point worthy of note is that skimmed or butter milk is as rich in good protein as whole milk.

The amount of fat consumed in groups C and D (school children) is not adequate, since it is recommended that a person should take on the average $1\frac{1}{2}$ to 2 ozs. of fat per day.

Mineral salts.

Calcium intake of groups A and B (Tables VIII and IX) is quite adequate but that of groups C and D (Tables X and XI) is below normal. In institutions where economic considerations make the supply of milk (whole or skimmed) impossible the administration of calcium lactate (0.5 g. per day) would supply the deficiency to some extent.

Phosphorus and iron contents in the diets consumed appear to be satisfactory.

Vitamins.

Vitamin A.

The United Nations' Conference on Food and Agriculture recommended the intake of 5,000 International Units of Vitamin A per consumption unit per day. Judged from this standard Vitamin A requirements have not been fully met in most of the groups, especially the school children.

The lack of vitamin A or its precursor carotene in the groups studied appears to be due to the following reasons :—

- (1) The fat used in these institutions is Dalda, etc. which is of vegetable origin. Vegetable fat unlike animal fat (butter or ghee) does not contain any vitamin A.
- (2) Our fashionable modern youths have lost taste for leafy vegetable dishes (which could form a good source of pro-vitamin A). The mere name of a leafy vegetable dish in a menu produces a lack of appetite and dries up the normal salivation of college or school youngsters.

* One old seer = $2/5$ seer.

- (3) Milk and milk products are costly and not easily available and hence do not readily find a place in menus.
- (4) Taboos and traditions in some groups do not allow the intake of meat, fish, poultry, or eggs.

Vitamin B.

(ii) Vitamin B₁ and B₂ group content in the diets can be taken as adequate, as the diets are based on whole wheat and pulses, which are quite good sources of B₁ and most members of B₂ group.

Vitamin C.

(iii) In some institutions salads consisting of onions, green chillies, tomatoes, etc., with or without lime juice are taken. These raw uncooked vegetables provide a good source of vitamin C. Vitamin C is sensitive to heat and loss occurs in cooking particularly if cooking is prolonged. The intake of some uncooked green vegetables should be encouraged.

A. General recommendations.

The problem is by no means identical in all the institutions. There are considerable differences both in degree and nature of under or malnourishment in the various institutions surveyed. There is a similar variation in the extent to which the resources available and religious tendencies would allow any improvement to be effected. In practically every institution there is a problem of its own to be solved and a defect peculiar to it to be corrected. The following general suggestions if acted upon should improve the nutritive value of the diets.

- (a) The diets in most of the groups studied were non-vegetarian in character. The amount of animal protein consumed was inadequate and the inclusion of some animal protein in the diet of growing children is very desirable.
- (b) A minimum of at least one pint per head per day should be aimed at. In institutions where whole milk is unobtainable skimmed or butter milk can be used with advantage.
- (c) Green leafy vegetables are cheap, easily available and highly nutritious. The inclusion of these vegetables in adequate quantities in the diets of the institutions will bring about improvement without additional cost.

Leafy vegetables are rich sources for the supply of organic acids, and mineral salts while their bulk stimulates peristalsis. They are also rich in carotene and vitamin C. Since ghee (animal fat containing vitamin A) is scarce and costly and vegetable fat products are being increasingly consumed, leafy vegetables are of special importance as a source of carotene (provitamin A). It is now an accepted dictum that a well balanced dietary should contain a liberal amount of fresh leafy vegetables.

- (d) In groups, where financial resources allow, the inclusion of fruits in the diet is recommended. Mangoes, papayya, tomatoes and oranges are good sources of provitamin A and vitamin C.

B. *Number of meals.* Two principal meals (mid-day and evening) are supplied to the inmates of all the institutions. In some breakfast is also supplied and in three institutions arrangements are also made to give tea in the evening. It is desirable that arrangements should be made to give breakfast and evening tea in all the institutions. Most of the children take something for breakfast and evening tea. An arrangement on a group basis would be more satisfactory since it is usually cheaper and more sanitary and the material supplied should be

wholesome. By the help of nutrition and public health workers group feeding and catering can provide an important means of improving health and preventing infectious diseases.

- C. *Preparation and cooking of food-stuffs* :—Cooking affects the nutritive value of food, for instance there is loss of mineral salts in boiling; potatoes when boiled lose about 18 % of their mineral matter and 6 to 8% of their protein. Ascorbic acid, riboflavin and nicotinic acid dissolve readily in water and therefore pass out into the water in which foods are cooked. If cooking is defective a properly planned diet may fail to deliver the goods. It is a cook that makes a diet fit for ingestion—palatable and appetising—but the art of cooking is more than the mere production of a tasty dish attractively served. A good cook must know how to conserve food values. In passing it may be worth while to note down the following suggestions for saving vitamins (U.S. Department of Agriculture, year book 1939 p. 295).

“ Do not stir air into food while cooking.

Do not put them through a sieve while hot.

Do not use soda in cooking green vegetables.

In boiling foods, raise the temperature to the boiling point as rapidly as possible. Use as little water as possible.

Do not use long cooking processes like stewing when shorter methods are feasible.

Do not throw away the water in which vegetables have been cooked, use it in making gravies, sauces and soups.

Do not fry food valuable for their contents of vitamin A, D, and E.

Prepare chopped fruits and vegetable salads just before serving.

Start cooking frozen fruits while they are still frozen.

Serve raw frozen fruits immediately after thawing”.

- D. *Management of messes* :—In the institutions studied there are two systems of running the messes :

(i) An honorary volunteer is chosen (selected or elected) from amongst the students and is put in charge of cooks. Usually this inexperienced student cannot afford to devote his or her full attention to the mess affairs and all too often everything is left in the hands of the cook.

(ii) A whole time steward or manager runs a mess. This person runs the mess in consultation with an advisory committee of the staff and students. The manager looks after the purchase of food-stuffs and the preparation and serving of meals.

The second arrangement is obviously better. It is suggested that in so far as conditions allow whole time persons should be appointed, as stewards or managers, in all the institutions. One of the responsibilities of a manager or steward is to make sure that the persons for whom he or she is caring in the hostels are provided with appropriate, well cooked and attractively served food. As the most important duty of the manager or steward is to tempt appetite and avoid under or mal-nourishment amongst the persons for whom he or she caters, it is suggested that these managers or stewards should undergo a training in the broad principles of nutrition. The first step would be to give them a few simple instructions on Health Bulletin No. 23 which gives food values very clearly and simply.

It is further suggested that there should be a “Delhi University Food Committee” to combat ignorance, prejudice and superstition about diet amongst

students. The managers or stewards of the different educational institutions should be on this committee. A representative of the Indian Research Fund Association may also be on the committee to advise on developments in nutritional science. The formation of such a committee will enable the educational authorities to start a campaign for the improvement of the dietary of school children and college boys and girls. With effort such a committee can do a great deal to remove food prejudices and fads and thus help to raise a fitter generation of people. This may help considerably in achieving, what we so often wish for students and for workers, "Mens Sana in Corpore Sano".

Table II.

Principal foodstuffs in balanced diet.

	Recommendation of U. N. Conference on Food and Agriculture.		Recommended in Health Bulletin No. 23.
	Plan I (Foodstuffs: ozs. per adult male unit per day).	Plan II	
Cereals	10·03	8·49	15·0
Pulses (Mature leguminous seeds and nuts) ..	1·06	0·58	3·0
Leafy vegetables	3·47	6·75	4·0
Nonleafy vegetables. (Starch rich tubers, roots and other vege- tables and fruits). ..	13·12	15·05	6·0
Fruits. (Vitamin C. rich fruits) ..	3·47	4·15	2·0
Fat	2·22	2·22	2·0
Vegetable oils	..	..	..
Milk and milk products ..	20·93	23·15	8·0
Meat fish (Flesh products) ..	3·96	5·21	..
Eggs	0·6	0·75	..
Sugar and jaggery	1·54	1·54	..

Table III.

Principal foodstuffs in the diet of College girls (Delhi).

	Indraprastha Girls College.	Lady Hardinge Medical College.					Lady Irwin College for Girls.
		Cosmo-politan.	Vegetarian.	Non-vegetarian.	Muslim mess	Sikh mess	
No. of persons ..	41	16	48	19	23	30	115
Expenses per head per month (Rs.) ..	25	30 to 35	30 to 35	30 to 35	30 to 35	30-35	20
No. of adult male units ..	34·0	12·0	38·4	15·2	18·4	24·0	92·0
Expenses per adult male unit per month (Rs.). ..	30·1	46·6	40-46	40-46	40-46	40-46	25
Number of meals per day ..	4	4	4	4	4	4	4

FOODSTUFFS : Ozs. per adult male unit per day.

Rice	3·4	0·88	3·0	2·0	2·9	2·1	2·3
Wheat	8·44	12·62	13·6	12·6	11·8	10·7	9·0
Other cereals .. ..	..	..	..	..	..	..	..
Pulses	2·17	0·8	3·6	2·8	1·6	2·7	1·6
Leafy vegetables .. ..	..	1·5	1·4	0·7	0·7	1·2	0·3
Non-leafy vegetables	8·08	13·7	19·9	15·4	10·3	16·2	12·5
Fruits	1·97	8·5	3·2	4·2	5·7	2·0	0·9
Ghee } Animal .. ..	..	1·15	1·0	1·0	1·6	0·6	0·6
Vegetable	2·17	1·28	3·0	2·2	2·8	2·5	1·8
Vegetable oils .. ..	..	..	..	..	..	..	..
Milk and milk products	14·63	7·8	21·5	19·5	12·5	19·1	9·2
Meat, fish and eggs	0·69	11·0	..	3·5	6·6	1·8	2·3
Sugar and jaggery	1·11	2·5	2·4	3·3	2·9	2·8	2·0

Table IV.

Principal foodstuffs in the diet of College Boys (Delhi).

	University Hostel.	St. Stephen College.		Hindu College.
		Vegetarian mess	Non-vegetarian mess.	
No. of persons	69	84	90	74
Expenses per head. per month (Rs.). ..	30-35	25	25	20
No. of adult male units	69	84	90	74
Expenses per adult male unit per month (Rs.).	30-35	25	25	20
No. of meals per day	3	3	3	2

FOODSTUFFS : Ozs. per adult male unit per day.

Rice	0·4	2·6	2·4	0·3
Wheat	15·02	13·34	11·88	14·9
Other cereals .. .. .	..	..	..	..
Pulses	2·50	1·35	0·63	3·3
Leafy vegetables	0·34	0·35	1·10	0·84
Non-leafy vegetables	15·64	20·22	9·98	13·87
Fruits .. .. .	..	0·38	0·34	0·79
Ghee { Animal .. .. .	..	..	..	1·9
Vegetable	1·95	2·09	2·28	0·43
Vegetable oils .. .. .	..	..	..	..
Milk and milk products	7·58	11·61	8·04	11·69
Meat, fish and eggs	2·84	..	7·47	..
Sugar and jaggery	0·54	1·76	1·70	2·5

Table V.

Principal foodstuffs in the diet of school girls (Delhi).

	Victoria School.	St. Elizabeth Hostel.	St. Mary's Home.
No. of persons	96	81	36
Expenses per head per month (Rs.)	7 to 8	7 to 8	7 to 8
No. of adult male units ..	70·8	56·9	23·8
Expenses per adult male unit per month	9·5 to 10·8	9·8 to 11·3	10·5 to 12·1
Number of meals per day ..	3	3	3

FOODSTUFFS : Ozs. per adult male unit per day.

Rice	1·34	1·03	1·9
Wheat	16·82	14·06	16·57
Other cereals .. ..	..	..	..
Pulses	4·91	3·42	3·36
Leafy vegetables .. ..	..	..	..
Non-leafy vegetables ..	4·17	5·49	7·88
Fruits	1·23	0·81	..
Ghee (Animal Vegetable)	0·29	0·35	0·42
Vegetable oils .. ..	..	..	..
Milk and milk products ..	0·57	0·85	5·38
Meat, fish and eggs	2·37	2·17	3·84
Sugar and jaggery	0·57	0·42	1·68

Table VI.

Principal foodstuffs in the diet of school boys (Delhi).

	A. V. Jain Hostel.	Delhi United Christian School	
		Stephen Thomas	St. Paul's Hostel
No. of persons	114	71	86
Expenses per head per month (Rs.)	12 to 13	9-10	8-9
No. of adult male units ..	93·8	63·4	71·9
Expenses per adult male unit per month Rs.)	14·5 to 15·8	10 to 11	9 to 10

FOODSTUFFS : Ozs. per adult male unit per day.

Rice	1·0	0·0	0·0
Wheat	17·06	19·6	18·1
Other cereals .. .. .	..	..	..
Pulses	2·92	1·4	2·1
Leafy vegetables .. ..	..	1·5	..
Non-leafy vegetables ..	4·27	3·5	1·6
Fruits	2·39	..	..
Ghee { Animal	0·87	..	..
Vegetables .. .. .	..	0·4	0·2
Vegetable oils .. .. .	..	..	..
Milk and milk products ..	4·11	1·1	1·1
Meat, fish and eggs .. ..	..	1·5	1·3
Sugar and jaggery	2·24	1·3	1·2

Table VII.

Chemical composition of balanced diet.

Chemical composition.	Recommendations of United Nations Conference on Food and Agriculture.	"Well balanced" diet for an average adult (Health Bulletin No. 23).
Average intake per consumption unit per day.		
Calories	3000	2600
Percentage of calories from cereals ..	..	..
Protein g.	70	65
Animal protein g. .. ..	..	At least 13
Fat g. .. ..	..	45660
Animal fat g. .. ..	..	..
Carbohydrates g. .. ..	..	..
Calcium g.	0.8	0.68
Phosphorous g. .. ..	..	more than 1.0
Iron mg.	12	20
Vitamin A & Carotene (L. V.) ..	5000	3000
Vitamin B ₁ (I.V.)	600	300
Vitamin C. (mg.)	75	30 to 50

Table VIII.

Chemical composition of the diet of college girls (Delhi).

Chemical composition.	Indraprastha College.	Lady Hardinge Medical College					Lady Irwin College for girls.	
		Cosmopolitan mess.	Vegetarian mess.	Non-vegetarian mess.	Muslim mess.	Sikh mess.		
Average intake per consumption unit per day.								
Calories	2447	3115	3935	3718	3661	3176	2511	
Percentage of calories from cereals	45.0	34.3	39.6	36.7	34.2	33.9	41.4	
Protein g.	65.49	122.0	103.5	106.2	107.7	88.4	68.2	
Animal protein g.	17.35	74.2	19.8	36.9	47.5	27.0	20.9	
Fat g.	85.46	116.6	141.2	129.2	147.1	120.1	88.0	
Animal fat g.	19.58	43.5	40.7	57.3	61.1	40.3	32.5	
Carbohydrates g.	357.0	397.0	563.4	533.8	477.7	460.1	360.0	
Calcium g.	0.84	0.7	1.5	1.5	1.0	1.2	0.8	
Phosphorous g.	1.29	1.2	2.2	2.0	1.7	1.7	1.2	
Iron mg.	20.87	18.4	42.8	36.6	32.2	32.3	23.8	
Vitamin A & carotene	1566.2	5297.0	3370.0	2889.0	5612.0	2738	1432	
Vitamin B.	264.1	578.6	500.7	456.1	486.9	448.7	268.2	
Vitamin C.	38.3	101.1	175.1	104.6	160.8	80.2	60.6	

Table IX.

Chemical composition of the diet of college boys (Delhi).

Chemical composition.	University Hostel.	St. Stephen College.		Hindu College Hostel.
		Vegetarian mess.	Non-vegetarian mess.	
Average intake per consumption unit per day.				
Calories	2833	2965	2972	3057
Percentage of calories from cereals	51.4	45.4	43.5	50.0
Protein g.	135.1	78.2	111.6	88.7
Animal protein g. .. .	21.8	10.4	49.2	13.3
Fat g.	82.1	75.5	104.4	88.7
Animal fat g.	20.8	11.3	37.0	65.2
Carbohydrates g.	427.6	489.5	405.4	500.4
Calcium g.	0.90	0.96	1.04	0.90
Phosphorus g.	2.0	1.77	1.87	2.10
Iron mg.	44.1	35.0	36.1	46.2
Vitamin A & carotene ..	1062.2	2463.5	8231	2539.8
Vitamin B.	309.7	276.2	325.8	315.8
Vitamin C.	59.9	114.6	51.3	..

Table X.

Chemical composition of the diet of school girls (Delhi).

Chemical composition.	Victoria School Hostel.	St. Elizabeth School Hostel.	St. Mary's Home.
Calories	2693	2142	2277
Percentage of calories from cereals.	70.3	70.4	66.5
Protein g.	109.6	86.8	115.0
Animal protein g.	15.7	14.7	29.6
Fat g.	24.5	23.0	30.0
Animal fat g.	2.3	2.5	8.32
Carbohydrates g.	507.7	296.2	511.1
Calcium g.	0.52	0.45	0.6
Phosphorous g.	2.27	1.78	2.2
Iron mg.	59.2	41.2	44.1
Vitamin A & carotene. ..	610.1	445.6	661.3
Vitamin B.	330.5	287.1	413.3
Vitamin C.	8.2	77.5	14.6

Table XI.

Chemical composition of the diet of school boys (Delhi).

Chemical composition.	A. V. Jain Middle School hostel.	Delhi United X'ian School.	
		Stephen Thomas hostel.	St. Paul's hostel.
Average intake per consumption unit per day.			
Calories.	2557	2441	2145
Percentage of calories from cereals.	70.4	79.0	80.1
Protein g.	82.6	87.8	84.8
Animal protein g.	3.85	10.5	9.6
Fat g.	20.3	24.9	18.8
Animal fat g.	6.3	2.2	2.1
Carbohydrates g.	500.4	465.8	406.9
Calcium g.	0.54	0.4	0.4
Phosphorous g.	2.0	1.9	1.8
Iron mg.	43.4	45.3	41.0
Vitamin A & Carotene (I.U.) ..	7881.4	1342.7	203.4
Vitamin B ₁ (I.U.)	174.0	205.4	154.4
Vitamin C (mg.)	6.8	22.8	4.9

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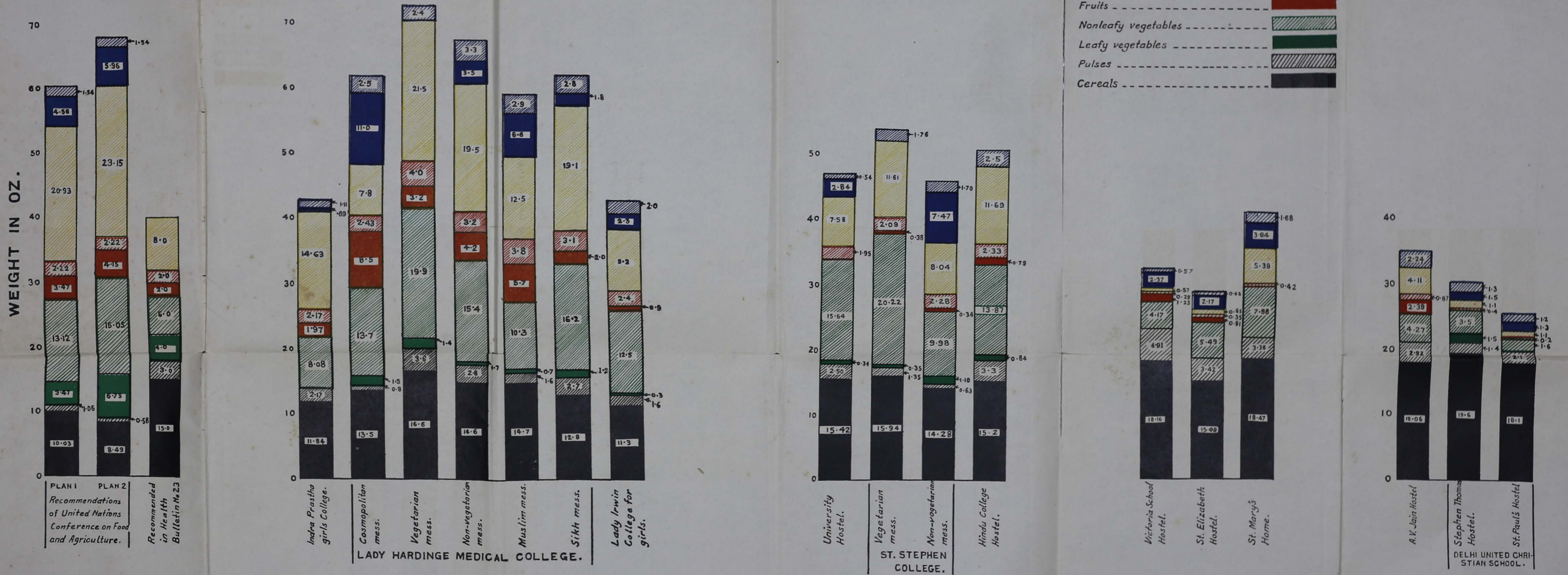
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- No. 3. Note on the Results of Diet Surveys in India by W. R. Aykroyd, M.D., Sc.D., Director, Nutrition Research Laboratories, I.R.F.A., Coonoor. (December, 1939).
- No. 4. Report of the Tuberculosis Survey Sub-Committee of the Indian Research Fund Association. (July, 1940).
- No. 5. Cholera Research in India 1934-40 under the Indian Research Fund Association—A review by Major-General J. Taylor, C.I.E., D.S.O., I.M.S., Director, Central Research Institute, Kasauli. (August, 1941).
- No. 6. Report of the Leprosy Survey Sub-Committee of the Indian Research Fund Association. (September, 1941).
- No. 7. Memorandum on Anaemia in Pregnancy in India by L. Everard Napier, F.R.C.P.(Lond.), and M.I. Neal Edwards, M.D.(Lond.), W.M.S., including Haematological Technique by L. Everard Napier, F.R.C.P.(Lond.) and C. R. Das Gupta, M.B., D.T.M.(Cal). (March, 1942).
- No. 8. The Use of Fresh Milk in Infant Feeding. (May, 1942).
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- No. 13. Report on Soya Bean by the Soya Bean Sub-Committee of the Nutrition Advisory Committee of the I.R.F.A. (January, 1946).

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