



Government of Bombay

REPORT
ON THE
DIET AND NUTRITION STUDIES IN
AN INDUSTRIAL AREA
(KURLA, BOMBAY)

APRIL-MAY 1955

By

DR. M. V. RADHAKRISHNA RAO, M.B., B.S., PH.D., F.N.I., F.A.S.C.,
*Assistant Director, In-charge Department of Nutrition,
Government of Bombay*



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With compliments from:

Dr. M. V. Radhakrishna Rao,
M.B., B.S., Ph.D., F.N.I., F.A.Sc.,
Assistant Director, in-charge
Department of Nutrition, Government of Bombay,
C/o Haffkine Institute, Parel,
Bombay. 12.

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INTRODUCTION.

The Department of Industrial Health, Tata Industries Ltd., has been interested in the study of the dietary intake and the nutritional status of the industrial workers employed in their industries. In order to initiate this work on scientific basis, this Department had undertaken a diet and nutrition survey of 40 families of industrial workers in the Svadeshi Mills, Kurla, in April 1955.

Kurla.—Kurla is a railway station on the Suburban line of Central Railway, about 12 miles from Bombay V. T. It is included in Greater Bombay. The total population of the ward Ghatkopar, Kurla and 38 villages, is 2,29,629 of which 17,594 are industrial workers (1951 census).

The chawls where the survey was carried out are about a mile from the railway station.

In the Svadeshi Mills, there are about 5,400 workers ; most of them stay in Kurla. A group of chawls, about two to three furlongs from the Mill, was selected for the work.

SELECTION OF FAMILIES.

There are 349 tenements in the selected labour quarters of the industrial workers of the Svadeshi Mills at Kurla. The detailed information regarding the name of the head of the family occupying these tenements, number of persons in the family, their total income and community was supplied by the Medical Officer of the Tata Industries Ltd. (Department of Industrial Health).

From the data, it was observed that the families formed a homogeneous, group with similar economic condition and occupation. Forty families were, therefore, selected at random without any stratification, for the purpose of the survey. As some of the families were out of Bombay at the time of the survey, a few more families were selected at random towards the end of the survey. The total number of families surveyed is 40 (11.5 per cent.).

METHOD USED FOR THE SURVEY.

(a) *Diet Survey.*—The Hon. Social Worker in these chawls, explained to the families, selected for the survey work, the purpose of the survey and the nature of work and hence it was not necessary for the Nutritionists of the Department to pay the usual preliminary visits to the families for enlisting their co-operation.

The diet survey was carried out by Smt. S. Udas and Kum. S. Arora and the nutrition survey by Dr. V. N. Jai. The Statistical analysis of the data was carried out by Smt. K. Lotlikar.

The dietary data of the individual families was collected. The Nutritionists visited the families twice a day (once in the morning and once in the evening) for seven consecutive days, at the time of preparation of meals and weighed and measured the raw foodstuffs to be consumed during the day, to the nearest ounce (oz). The families were visited in the morning between 7 and 10 and in the evening between 4 and 6-30.

The schedule devised for the diet survey of the families for urban areas was used for this survey, with slight modifications (Appendix A). During the seven days' survey period, the number and ages of guests present for the meals, those absent for the meals and those observing fast were also noted.

(b) *Clinical Nutrition Survey*.—All these families were clinically examined by the Medical Officer, by the "rapid" method of clinical nutrition survey recommended by the Indian Council of Medical Research.

The form used for the purpose is given in the Appendix B.

THE PEOPLE AND GENERAL OBSERVATIONS ON THE DIETARY HABITS.

(a) *The People*.—All the families are Hindus belonging mostly to Intermediate and Backward Classes, like Marathas and Mahars. The families surveyed are all non-vegetarian. All the families speak Marathi.

(b) *Occupation*.—All the heads of the families as also some of the other members are employed in the Svadeshi Mills at Kurla.

(c) *Economic Condition*.—The total income of families ranged from Rs. 90 to Rs. 300 per mensem. The average income *per family* is Rs. 160 and *per C. U.* it is Rs. 36 per month.

The economic condition and environmental conditions of the families are very similar and as such they form a homogeneous group of Industrial population. The families are, therefore, considered in one group.

The number of persons covered by this diet survey is 224—146 adults and 78 children. Of these, 83 are men, 63 women, 38 boys and 40 girls.

The number of earning members is 70.

(d) *Dietary Habits*.—Generally, two principal meals are consumed during the day; tea is taken twice at home. The morning "nasta" generally consists of tea and *chapati* or Baker's bread.

All types of cereals such as *jowar*, *bajra*, wheat and rice are consumed. Most of the families surveyed consumed unpolished rice, not because they were aware that it is more nutritious, but because it was cheaper, compared to the polished rice. A few families consumed rice both the times, as it does not involve much effort in the preparation, unlike the preparation of *chapati* and *bhakar*.

It is said that *bajra* is consumed during winter, and *Jowar* during summer. This observation was also made during the diet survey in Sirur Health Unit area, where both *Jowar* and *bajra* are produced. However, the consumption of *bajra* and *jowar* was 13.8 ozs. and 7.7 ozs. per C. U. per day, respectively. The survey was done in January i.e., in winter.

The common pulses consumed are *tur* and *chana*. The other pulses consumed are *masur*, *watana*, *chawali*, *mug*, etc. Preparations of sprouted pulses are also made. However, sprouted pulses are generally purchased from the hawkers, even though it is economical to sprout the pulses at home.

Leafy vegetables like *chawali*, radish leaves, onion leaves were commonly consumed, while the other leafy vegetables such as *alu*, cabbage, etc. were consumed occasionally. The coriander leaves were used by some families as flavouring agents; as in other surveys, it was found that the consumption was low.

The commonly consumed roots and tubers are onions and potatoes. Onions are consumed daily, as condiments in the preparations of vegetables and *dals*. Potatoes are generally consumed along with mutton preparations and occasionally *bhaji* is also made. Other roots and tubers such as yam and sweet potatoes are consumed occasionally.

The most commonly consumed non-leafy green vegetables are cluster beans (*gavar*) and brinjals. Ladies fingers and white pumpkin are consumed occasionally.

Fruits are rarely consumed by the families. However, sweet limes, water melon, etc. were occasionally purchased for children by the parents from the hawkers.

The consumption of *gur* is practically nil, even though the price of *gur* is nearly half that of sugar. Sugar is used in tea and as there is no control over sugar, this can be purchased in any amount. Thus, on an average each family is spending about annas 4 daily only on sugar. In addition, the worker takes two to three cups of tea at the Mill.

The oil used is groundnut oil. Hydrogenated oils are consumed occasionally and the consumption of ghee and butter is nil because of its high price.

Different types of milk such as goat's milk, buffalo's milk and "toned" milk are consumed by the families. It is interesting to note that the buffalo's milk which is dearest of all is consumed more. The reason is that it is available at the house through the milkman, while for "toned" milk, one has to go to the centre. The families who possess goats consume goat's milk. Occasionally these families sell the goat's milk at the rate of Rupee 1 per seer (22 ozs). The quantity sold is very small varying from 1 oz. to 4 ozs.

Fleshy foods such as mutton are purchased once in ten days, usually on Mill holidays. Dried and fresh fish are purchased from hawkers and preparations are made frequently. Eggs are consumed occasionally.

Roasted groundnuts are purchased from the hawkers and generally these are consumed by the children. Dried coconut is used in the preparation of mutton.

Food is generally cooked in open pans.

Betel leaves are consumed by a large number of adults in the families. Other foods such as *chikki*, ice-fruit, lemon drops, "butter" biscuits, sweet limes, etc. are consumed by the children, in small quantities.

On an average, the worker—the earning member, takes two to three cups of tea and some snacks. Tea and snacks, are served to the worker at the working place. The canteen in a Mill prepares snacks such as *Batata wada*, *Thalipit*, *Bhajis*, *Chivda*, *Shev*, *Puri* and potato vegetable, *jeelebi*, *bundi laddoo*, *dink laddoo*, etc. Baker's Bread is also served with tea.

(e) *Tenements*.—The chawls are actually single-room tenements. The rooms are dark and dingy. Sometimes two or three families stay in one room.

(f) *Water Supply*.—There is fairly good arrangements for drinking water through common taps; however, there is no proper drainage system.

(g) *System of purchase*.—The foodstuffs such as cereals, pulses, sugar, etc. are purchased from the Mill's shop. The workers while returning home from the Mill, purchase vegetables from the vendors on the pavement just outside the Mill. Dried and fresh fish are purchased from the hawkers. The nearest market for this area is Sion market, which is at a distance of about one mile. The workers have to go to this market, for the purchase of mutton.

(h) *Welfare Measures*.—In the premises, there is a welfare centre. The workers play indoor games. There is a Montessori School and two teachers are employed. The number of children on roll is 80, while the average attendance is 60.

(j) *Medical Facilities*.—The Mill is maintaining a dispensary and two doctors are employed to run it. Medicines are given free to the members of the families. In addition, there are special facilities for T. B. patients. He is admitted to any T. B. Hospital in India provided there is a vacancy and also given Rs. 30 per mensem as allowance for food and the family is given Rs. 50 per mensem as maintenance allowance.

The common ailments are granular conjunctivitis (trachoma), dysentery, diarrhoea, secondary anaemia, bronchitis, asthma, rickets, furunculosis, etc.

RESULTS OF THE DIETARY STUDIES.

(a) *Average Diet*.—The average intake of each class of food-stuffs per c. u. per day for each family has been calculated from the seven days' dietary data, collected by the nutritionists during their visits to the families. These

are shown in Appendix C along with the other information about the families. For this purpose, the following scale of co-efficient (C. U.) was used :—

| | C. U. |
|----------------------------|-------|
| Adult male | 1.0 |
| Adult female | 0.9 |
| Adolescents 12 to 21 years | 1.0 |
| Children 9 to 12 years | 0.8 |
| Children 7 to 9 years | 0.7 |
| Children 5 to 7 years | 0.6 |
| Children 3 to 5 years | 0.5 |
| Children 1 to 3 years | 0.4 |
| Expectant mother | 0.9 |
| Nursing mother | 1.2 |

The average diet of each family has been analysed for its nutritive value and the nutrient analysis of the diets are also shown in Appendix C.

From these values for the average intake of foodstuffs for each family, the average value for all the families together have been calculated. The average diet is shown in Table I. The table also gives the standard deviation of the respective average values of the intake of foodstuffs and the levels of intake recommended by the Nutrition Advisory Committee of the Indian Council of Medical Research in November 1944. The maximum and the minimum values observed in the case of each item of foodstuff have also been given to indicate the variation range in the average intake values of the families.

The average diet is not very satisfactory. The average intake of all items of foodstuffs, except cereals and sugar and jaggery, are below the recommended level. Thus the diet is inadequate in all the 'protective foods' like vegetables, fruits, milk and milk products and fleshy foods.

Table II shows the differential consumption of foodstuffs in the families. The families have been divided into—

- (1) those *not* consuming any particular foodstuff ;
- (2) those consuming a particular foodstuff with the average intake *below* the desired level ;
- (3) those consuming a particular foodstuff with the average intake *up to* the desired level and *above*.

It will be noticed from this, that the majority of the families come in the group 'below desired level' for all items of foodstuffs except cereals, fruits and eggs. For cereals, the majority of families are in the group 'up to desired level and above' while for fruits and eggs, the majority are in the group 'not consuming any particular foodstuff'.

Table III shows the average values of the intake of nutrients of these families. The values are below the recommended level for fats, calcium, vitamin A and vitamin C. The consumption of other nutrients is adequate. The consumption of iron is adequate but most of this iron is derived from cereals.

The caloric intake is adequate but they are mainly derived from carbohydrates.

These findings are corroborated by the nutrition survey findings, the main deficiency symptoms being indicative of generalised undernourishment and hypo-vitaminosis A; and iron deficiency in women.

TABLE I.

Statement showing the average diet, standard deviation, maximum and minimum values for each item of foodstuff and the diet recommended by Indian Council of Medical Research.

| Foodstuffs. | Balanced diet recommended by I. C. M. R. (in ozs.). | Average diet (in ozs.). | Standard deviation. | Maximum. (in ozs.). | Minimum. (in ozs.). | Remarks. |
|-------------------------------|---|-------------------------|---------------------|---------------------|---------------------|----------|
| Rice | ... | 5.9 | | 14.7 | ... | |
| Wheat | ... | 6.3 | | 18.6 | ... | |
| Jowar | ... | 7.5 | | 21.4 | ... | |
| Bajra | ... | 2.9 | | 19.7 | ... | |
| Other cereals | ... | ... | | 1.0 | ... | |
| Total cereals | 14.0 | 22.6 | +6.0 | 33.0 | 10.3 | |
| Pulses | 3.0 | 1.7 | +1.0 | 6.0 | 0.4 | |
| Green leafy vegetables | 4.0 | 0.5 | +0.4 | 1.4 | ... | |
| Root and Tubers | 3.0 | 2.4 | +1.4 | 7.6 | 0.6 | |
| Other vegetables | 3.0 | 1.4 | +1.0 | 4.7 | ... | |
| Fruits | 3.0 | 0.3 | +0.6 | 3.8 | ... | |
| Sugar and Jaggery | 2.0 | 2.6 | +1.1 | 6.9 | 1.1 | |
| Vegetable oils and fats | ... | ... | ... | ... | ... | |
| Butter and Ghee | 2.0 | 1.2 | +0.6 | 2.8 | 0.6 | |
| Milk and Milk products | 10.0 | 1.8 | +1.3 | 6.8 | ... | |
| Fish (fresh) | ... | ... | ... | ... | ... | |
| Fish (dried) | 3.0 | 0.6 | +0.6 | 2.0 | ... | |
| Meat | ... | 1.0 | +0.8 | 2.5 | ... | |
| Eggs | 1.5 | 0.1 | +0.2 | 0.9 | ... | |
| *Betel leaves ... .. | ..... | 0.2 | +0.2 | 0.6 | ... | |
| †Nuts and oil seeds ... .. | ..... | 0.4 | +0.5 | 2.1 | ... | |

*No particular recommendations are made for items such as betel leaves (*pan*), etc.

†This group of foodstuffs is recommended usually for the vegetarians.

TABLE II.

Statement showing the differential consumption of foodstuffs in the families surveyed.

| Foodgroups. | Number of families not including the particular foodstuff in their diets. | | Number of families including the particular foodstuff in their diets. | | | | |
|------------------------|---|-------------|---|-------------|-------------------------------|-------------|------|
| | | | Below desired level | | Up to desired level and above | | |
| | No. | Percentage. | No. | Percentage. | No. | Percentage. | |
| Cereals ... | ... | ... | 2 | 5.0 | 38 | 95.0 | |
| Pulses ... | ... | ... | 37 | 92.5 | 3 | 7.5 | |
| Leafy vegetables | ... | 3 | 7.5 | 37 | 92.5 | ... | |
| Root vegetables | ... | ... | 30 | 75.0 | 10 | 25.0 | |
| Other vegetables | ... | 2 | 5.0 | 34 | 85.0 | 4 | 10.0 |
| Fruits ... | ... | 29 | 72.5 | 10 | 25.0 | 1 | 2.5 |
| Sugar and Jaggery | ... | ... | 31 | 77.5 | 9 | 22.5 | |
| Oils and fats ... | ... | ... | 37 | 92.5 | 3 | 7.5 | |
| Milk and milk products | ... | 1 | 2.5 | 39 | 97.5 | ... | |
| Fish and Meat | ... | 1 | 2.5 | 35 | 87.5 | 4 | 10.0 |
| Eggs ... | ... | 29 | 72.5 | 11 | 27.5 | ... | |

(b) *Foodstuffs—Cereals.*—The average consumption of cereals is 22.6 ozs. per C. U. per day. Cereals consumed are rice, wheat, *jowar* and *bajra*. The average consumption of rice is 5.9 ozs., wheat 6.3 ozs., *jowar* 7.5 ozs. and *bajra* 2.9 ozs. per C. U. per day. The average consumption of cereals is above the recommended level of 14.0 ozs. per C. U. per day. Only two families consumed cereals below the recommended allowance.

Pulses.—The average consumption of pulses is 1.7 oz. per C. U. per day, which is much below the recommended level of 3.0 ozs. per C. U. per day. Only three families consumed pulses in adequate quantities.

Leafy vegetables.—The average consumption of leafy vegetables is only 0.5 oz. Three families did not consume any leafy vegetable, while the remaining 37 families consumed it in quantities much below the desired level.

Root vegetables.—The average consumption of roots and tubers is 2.4 ozs. per C. U. per day. The consumption was satisfactory in 10 families, while it was below the desired level in all the remaining 30 families.

Other vegetables.—The average consumption of other non-leafy green vegetables is 1·4 ozs. per C. U. per day. Out of the 40 families, 2 families did not consume any 'other vegetables'; 34 families consumed it less than the desired level and only 4 families, upto and above the desired level.

Fruits.—The average consumption of fruits is only 0·3 oz. per C. U. per day. Twenty-nine families did not consume any fruits. 10 families consumed them in inadequate quantities; while only one family consumed them in adequate quantities.

Sugar and Jaggery.—The average consumption of sugar and jaggery is 2·6 oz. per C. U. per day, which is more than the recommended level. Nine families consumed these foodstuffs upto and above the recommended level while the remaining 31 families consumed it in inadequate quantities.

Vegetable oils and fats.—The average consumption of oils and fats is only 1·2 ozs. per C. U. per day. Thirty-seven families consumed it in inadequate quantities, and the remaining three in adequate quantities.

Milk and milk products.—The average consumption is very unsatisfactory—only 1·8 ozs. per C.U. per day, far below the recommended level. One family did not consume any milk, while the remaining 39 consumed it in inadequate quantities.

Fish and Meat.—The average consumption is 1·6 ozs. per C.U. per day. One family did not consume any fish and meat, while 35 families consumed it in inadequate quantities and the remaining four families in adequate quantities.

Eggs.—The average consumption is only 0·1 oz. per C.U. per day. 29 families did not consume eggs. The remaining 11 families consumed them in meagre quantities.

Other foods.—The average consumption of betel leaves was 0·2 oz. per C.U. per day and that of nuts and oil seeds was 0·4 ozs. per C. U. per day.

(c) *Nutrients : Proteins.*—The average intake of proteins is 93·2 g. per C. U. per day. This quantity is adequate. However, they are mainly derived from cereals. The intake of animal proteins is fairly good, although not upto the required level—the average consumption is only 12·2 gms.

Fats.—The average intake of fats is only 59·6 gms. per C. U. per day, which is rather low for a balanced diet. It is nearly 3/4th of the accepted level.

Carbohydrates.—The average intake of carbohydrates is 591·4 gm. per C. U. per day which is fairly high and above the recommended allowance. This is mainly due to the high intake of cereals.

Calcium.—The average intake of calcium is 0.57 gm. per C. U. per day. This is inadequate, being only $\frac{3}{5}$ th of the recommended allowance. The main source of calcium is milk and in the present diet, the intake of milk is very low. The average intake of phosphorus is 2.09 gm. per C. U. per day.

TABLE III.

Statement showing the average value of the nutrients of the diets of the families, with the nutrient intake recommended by the Indian Council of Medical Research.

| Nutrient. | Nutrient intake recommended by I. C. M. R. (per c.u. per day) | Average intake of nutrients. |
|-------------------------------------|---|------------------------------|
| Proteins (g) | 82 | 93.2 |
| Animal Proteins (g) | 16-27 | 12.2 |
| Fats (g) | 85* | 59.6 |
| Carbohydrates (g) | 350* | 591.4 |
| Calcium (g) | 1.0 | 0.57 |
| Phosphorus (g) | ..... | 2.09 |
| Iron mg. | 20-30 | 43.7 |
| Vitamin A I. U. | 3000-4000 | 2273 |
| Vitamin B ₁ I. U. | 333-666 | 866 |
| Vitamin C mg. | 50 | 34 |
| CALORIES | 2400-3600† | 3274 |

Iron.—The intake of iron is satisfactory and above the recommended level. The average intake is 43.7 mg. per C. U. per day and is derived mostly from cereals, the contribution from vegetables and fruits being very small.

Vitamin A.—The intake of vitamin A is low (the average value being 2273 I. U. per C. U. per day). The consumption of betel leaves has added fair amounts of vitamin A to the diet. The intake of both fresh vegetables and fruits is low.

Vitamin B₁.—The average intake of vitamin B₁ is 866 I. U. per C. U. per day, which is adequate.

*Approximate requirements for a balanced diet.

†Varies with the nature and extent of work.

Vitamin C.—The average intake of vitamin C is 34 mg. per C. U. per day and is below the recommended level.

Calories.—The intake of calories is satisfactory; the average consumption is 3,274 per C. U. per day.

RESULTS OF THE NUTRITION SURVEY.

All the forty families, consisting of 224 persons and covered by the diet survey, were surveyed for clinical nutrition examination by the 'Rapid method'. As some members of a few families were absent and some had gone out of Bombay, only 189, i.e., 84 per cent. could be examined.

Of these, 117 were adults and 72 were children under 14 years. The distribution of Boys and Girls as also men and women in the three grades of nutritional status is given in Table IV.

The general nutritional status is not very satisfactory. It will be seen that out of 72 children, 29 per cent. are in grade I, 53 per cent. are in grade II and 18 per cent. in grade III. The percentage of boys in grade I is more than that of girls; but so also the percentage of boys in grade III. The value of "Chi-square" is 6.82 ($N=2$) and the probability of occurrence is between 0.05 and 0.02. The number of boys and girls is too small to generalise from this data.

As regards adults, there are 73 per cent. in grade I of nutritional status, 24 per cent. in grade II and 3 per cent. in grade III.

The percentage of men in grade I is 84 per cent., while that of women is 61 per cent. The value of "Chi-square" is 7.93 ($N=1$) (Taking grade II and III together), which is a significant value.

Thus, our previous observation that men are generally better nourished than women and that adults are better nourished than children is confirmed.

The details of the clinical findings and the signs and symptoms of specific nutritional deficiencies amongst the members of these families, who are put in grade II and III, are given in Table V.

The Table reveals a high prevalence of generalised undernourishment (25 per cent.), i.e., inadequacy of diets (caloric undernourishment), together with—in many cases, a deficiency of proteins also. Hypovitaminosis A (8 per cent.) has been observed more in children (14 per cent.). Besides, Secondary (Iron deficiency) anaemia (10 per cent.) was fairly common amongst women.

The incidence of caries was surprisingly low (only seven cases). Chewing of betel leaves was a common habit. (24 families consumed betel leaves).

Three cases of nutritional oedema and two cases of rickets in children were observed. The nature and distribution of oedematous condition as also the history—taking in these cases, were strongly suggestive of protein malnutrition. These symptoms have not been observed in any school children so far except at 'Balvihar', Worli.

TABLE IV.

Statement showing the distribution of children and adults in the three grades of nutritional status.

| — | | | No. examined. | No. | I Percent- age. | No. | II Percent- age. | No. | III Percent- age. | Percentage in grade II and III |
|---------------------------|-----|-----|------------------|-----|-----------------------|-----|------------------------|-----|-------------------------|--------------------------------------|
| Boys | ... | ... | 35 | 13 | 37 | 13 | 37 | 9 | 26 | 63 |
| Girls | ... | ... | 37 | 8 | 22 | 25 | 67 | 4 | 11 | 78 |
| Children (upto 14 years). | | | 72 | 21 | 29 | 38 | 53 | 13 | 18 | 71 |
| Men | ... | ... | 63 | 53 | 84 | 9 | 14 | 1 | 2 | 16 |
| Women | ... | ... | 54 | 33 | 61 | 19 | 35 | 2 | 4 | 30 |
| Adults | ... | ... | 117 | 86 | 73 | 28 | 24 | 3 | 3 | 27 |
| Total | ... | ... | 189 | 107 | 57 | 66 | 35 | 16 | 8 | 43 |

TABLE V.

Statement showing the incidence of deficiency symptoms in children and adults.

| — | | | Men. | Women. | Boys. | Girls. | Total. |
|-----------------------------------|-----|-----|------|--------|-------|--------|--------|
| 1. Poor Musculature | ... | ... | ... | ... | 5 | 4 | 9 |
| 2. Deficient sub-cutaneous fat | ... | ... | 5 | 3 | 19 | 20 | 47 |
| 3. Marked anaemia | ... | ... | ... | 2 | ... | ... | 2 |
| 4. Mild Anaemia | ... | ... | 1 | 9 | 2 | 5 | 17 |
| 5. Dry skin | ... | ... | ... | ... | ... | 1 | 1 |
| 6. Xerosis of Conjunctivae | ... | ... | ... | ... | 6 | 1 | 7 |
| 7. Bitot's spots | ... | ... | 2 | 1 | 6 | 3 | 12 |
| 8. Night blindness | ... | ... | 1 | ... | ... | ... | 1 |
| 9. Rickets | ... | ... | ... | ... | 1 | 1 | 2 |
| 10. Nutritional Oedema | ... | ... | ... | ... | 1 | 2 | 3 |
| 11. Fissured tongue | ... | ... | ... | 1 | ... | ... | 1 |
| Glazed tongue | ... | ... | ... | ... | ... | 1 | 1 |
| 12. Stomatitis | ... | ... | ... | 1 | 2 | 1 | 4 |
| 13. Pigmentation of conjunctivae | ... | ... | ... | ... | ... | 1 | 1 |
| 14. Caries (dental) | ... | ... | ... | 2 | 1 | 4 | 7 |
| 15. Muddy Conjunctivae | ... | ... | 1 | 1 | 1 | 1 | 4 |
| 16. Bluish discoloration of nails | ... | ... | 1 | ... | ... | ... | 1 |

It may be mentioned here that the children at 'Balvihar', Worli, also belong to families of industrial workers.

Signs of Vitamin B deficiency such as Fissured/Glazed tongue and stomatitis were observed in a few persons.

HEIGHTS AND WEIGHTS.

As a part of the clinical examination, heights and weights of all the members have been recorded. The average figures for boys and girls (including adolescents) are given in Table VI, and for adults (men and women) are shown in Table VII.

The number of boys and girls in each age group is too small and there are no children in some age groups. No attempt is, therefore, made to compare these figures with others.

The average height of an adult man is 63·6 in. and that of adult woman is 59·2 in. The average weight of an adult man is 109·6 lbs. and that of adult woman 98·5 lbs.

These are compared with the respective figures for Girgaum* adult men and women, as shown below :—

| | | Height in inches. | | Weight in lbs. | |
|---------|-----|-------------------|--------|----------------|--------|
| | | Men. | Women. | Men. | Women. |
| Kurla | ... | 63·6 | 59·2 | 109·6 | 98·5 |
| Girgaum | ... | 64·8 | 59·0 | 118·7 | 102·1 |

It will be seen that although there is no appreciable difference in height there is an appreciable difference in weight in the case of men and women.

TABLE VI.

Statement showing the average heights and weights of boys and girls.

| Age. | No. of boys. | Height in inches. | Weight in lbs. | No. of girls. | Height in inches. | Weight in lbs. |
|---------------|--------------|-------------------|----------------|---------------|-------------------|----------------|
| 1-5 Months .. | 2 | 23·5 | 13·5 | .. | .. | .. |
| 1 Year .. | 2 | 25·5 | 13·5 | 5 | 24·8 | 14·0 |
| 2 Years .. | 8 | 29·1 | 19·0 | 2 | 27·5 | 17·5 |
| 3 " .. | 8 | 32·0 | 22·5 | 4 | 32·5 | 22·3 |
| 4 " .. | .. | .. | .. | 1 | 36·0 | 26·0 |
| 5 " .. | 4 | 34·3 | 28·5 | 4 | 38·0 | 30·5 |
| 6 " .. | 2 | 40·5 | 33·0 | 2 | 39·5 | 28·5 |

*A diet and nutrition survey of lower middle class families was carried out in this area (D-ward of Bombay City) in the year 1950-51, by the Department.

TABLE VI—contd.

| Age group in years. | No. of boys. | Height in inches | Weight in lbs. | No. of girls | Height in inches | Weight in lbs. | |
|---------------------|--------------|------------------|----------------|--------------|------------------|----------------|---------------|
| 7 " | 5 | 42.6 | 35.6 | 2 | 41.0 | 35.5 | |
| 8 " | .. | .. | .. | 6 | 43.5 | 41.0 | |
| 9 " | .. | .. | .. | 3 | 48.0 | 46.7 | |
| 10 " | 3 | 52.7 | 60.0 | 2 | 54.0 | 57.5 | |
| 11 " | 1 | 49.0 | 50.0 | 2 | 43.0 | 46.0 | |
| 12 " | .. | .. | .. | 4 | 50.8 | 59.8 | |
| 13 " | .. | .. | .. | .. | .. | .. | |
| 14 " | .. | .. | .. | .. | .. | .. | |
| 15 " | 1* | 62.0 | 91.0 | 2 | 60.5 | 112.5 | *1 Not taken. |
| 16 " | 1* | 63.0 | 82.0 | 3 | 56.7 | 78.3 | *1 Not taken. |
| 17 " | 2 | 64.5 | 99.0 | 1 | 60.0 | 83.0 | |
| 18 " | 5 | 64.0 | 108.4 | 6 | 57.3 | 84.0 | |
| 19 " | 1 | 64.0 | 106.0 | 1 | 55.0 | 79.0 | |
| 20 " | 1 | 66.0 | 104.0 | 5 | 60.6 | 86.6 | |

TABLE VII.

Statement showing the average heights and weights of men and women.

| Age groups in years. | No. of men. | Height in inches | Weight in lbs. | No. of women | Height in inches | Weight in lbs. | |
|----------------------|-------------|------------------|----------------|--------------|------------------|----------------|---------------|
| 21—30 | 17* | 64.3 | 112.6 | 20 | 59.5 | 100.0 | *1 not taken. |
| 31—40 | 14* | 62.6 | 107.5 | 11 | 59.2 | 98.2 | *2 not taken. |
| 41—50 | 11* | 63.6 | 108.9 | 1 | 55.0 | 83.0 | *1 not taken. |
| 51—60 | 2 | 64.5 | 101.5 | 1† | 57.0 | 104.0 | †2 not taken. |
| over 60 | 1 | 63.0 | 110.0 | 1 | 59.0 | 82.0 | |
| All adults | 45 | 63.6 | 109.6 | 34 | 59.2 | 98.5 | |

SUMMARY.

A diet and nutrition survey of 40 families of industrial workers from Svadeshi Mills, Kurla, was carried out in April-May, 1955.

All the families are Hindus belonging to Intermediate and Backward Classes like Marathas and Maharas. The families surveyed are all non-vegetarian and speak Marathi.

The average income per C. U. per month is Rs. 36.

The average intake of all items of foodstuffs, except cereals and sugar and jaggery are below the recommended level.

The yield of following nutrients viz. fats, calcium, vitamins A and C is inadequate.

The caloric intake is adequate. Thus, the diets are adequate in quantity but need improvement qualitatively by inclusion of more of *protective* foods.

Out of the 224 members of 40 families surveyed for dietary data, 189 members were clinically examined. Of these, 117 are adults and 72 are children.

The nutritional status of families is not very satisfactory, with only 29 per cent. of children in grade I.

Our previous findings in similar surveys that men are better nourished than women and adults are better nourished than children is confirmed.

The average heights of men and women are nearly same as those of middle class adults of Girgaum ('D' ward, Bombay City) men and women; while the average weights are less than those of Girgaum adults.

The results of the diet survey—that diets are deficient in proteins, fats, calcium, vitamins A and C—are confirmed by the results of the clinical findings, the main deficiency symptoms being indicative of generalised undernourishment hypovitaminosis A and anaemia in spite of the apparent adequacy of iron intake.

RECOMMENDATIONS.

The data collected by the Department is adequate to conclude that the average dietary intake as well as the nutritional status of this industrial population is not satisfactory. Considering that the Tata Industries Ltd. is reputed for progressive outlook on the welfare of their industrial employees the following measures are recommended.

(A) *Welfare Centre*.—The activities of their present welfare centre, situated in the campus, may be enlarged with a view to serve as a Family Welfare Centre. For this purpose, the appointment of a Health visitor is essential, in order to implement the following measures:—

1. Distribution of food supplements to deserving persons e.g. UNICEF Skim Milk Powder to mothers and children;

2. Distribution of Vitamin tablets to malnourished persons, under medical advice ;

3. Educating the housewives (by home visits) in growing and eating seasonal vegetables and fruits, such as leafy vegetables, carrots, papaya etc. The use of ragi and sprouted pulses could be thus popularised.

(B) *Creche*.—In view of the incidence of protein malnutrition in some of the children of the pre-school age, special attention should be paid to the children attending the creche and the montessori school.

(C) *Dispensary*.—It should be adequately stocked with multivitamin and mineral (iron and calcium) tablets. One tablet each of vitamin A-D and vitamin B-C (Prepared by the Haffkine Institute) should be prescribed, particularly to the mother and child patients, to supplement their poor diet.

(D) '*Toned*' Milk Centre.—The meagre intake of milk and milk products is mainly due to its high cost, rather than ignorance about its food value. Hence, arrangements may be made with the Milk Commissioner, Bombay, for the sale of *Toned* milk (price As. 6 per scer), through a centre in the campus.

(E) *Fair Price Shop*.—Apart from milk, there are other items of '*protective*' foods such as meat, eggs, fresh vegetables, fruits, etc., which are not always within the reach of the labourers. Hence, the necessity to open *jair price* shops in the campus, to be run on a co-operative basis.

In order to encourage the workers to consume more of '*protective*' foods it is suggested the price of these foodstuffs may be subsidised by the management, in the beginning.

(F) *The Mill Canteen*.—One of the effective ways of improving the nutritional status of the industrial worker is by feeding the workers through the factory canteen. It is, therefore, essential that the snacks or mid-day meal served in the Mill canteen are improved.

(G) *Nutrition Education Programme*.—Simultaneously with the above measures, it is necessary to educate the workers and their families in the importance of selecting locally available and nutritious foodstuffs and the right methods of cooking. This Department will participate in any organised programme through the Welfare Centre or the mill canteen, such as talks in regional languages, cooking demonstrations and recommending suitable nutritious snacks.

ACKNOWLEDGMENTS.

Grateful acknowledgment is made to the Tata Industries Ltd., and to the staff of the Department of Industrial Health, particularly Dr. H. P. Dastur, Dr. M. D. Engineer, Shri J. A. Varde for the facilities given and co-operation accorded during the survey.

FIG. 1. SHOWING THE AVERAGE INTAKE OF FOODSTUFFS IN OZS.
PER C.U. PER DAY, IN THE FAMILIES OF INDUSTRIAL WORKERS AT KURLA.

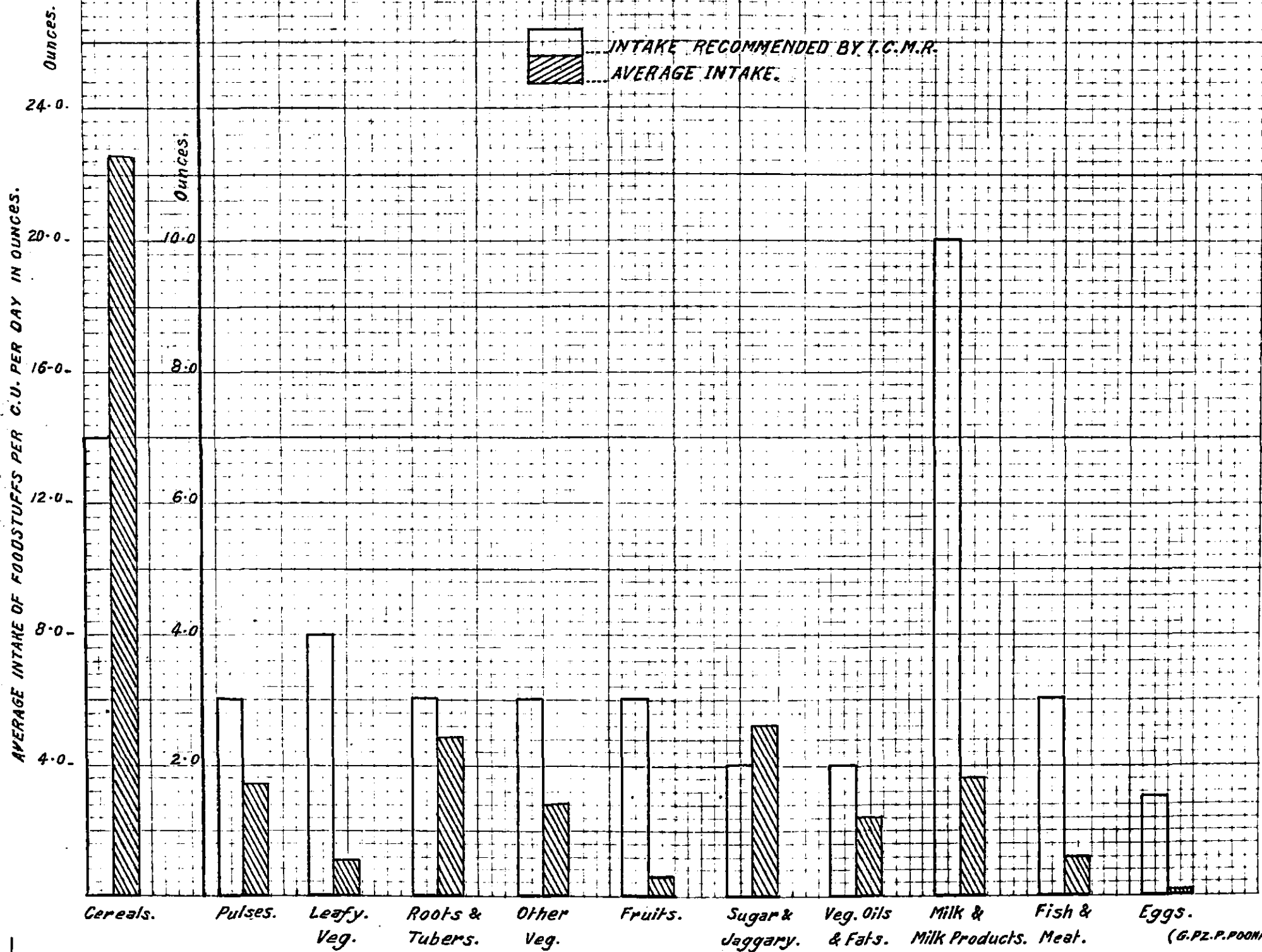
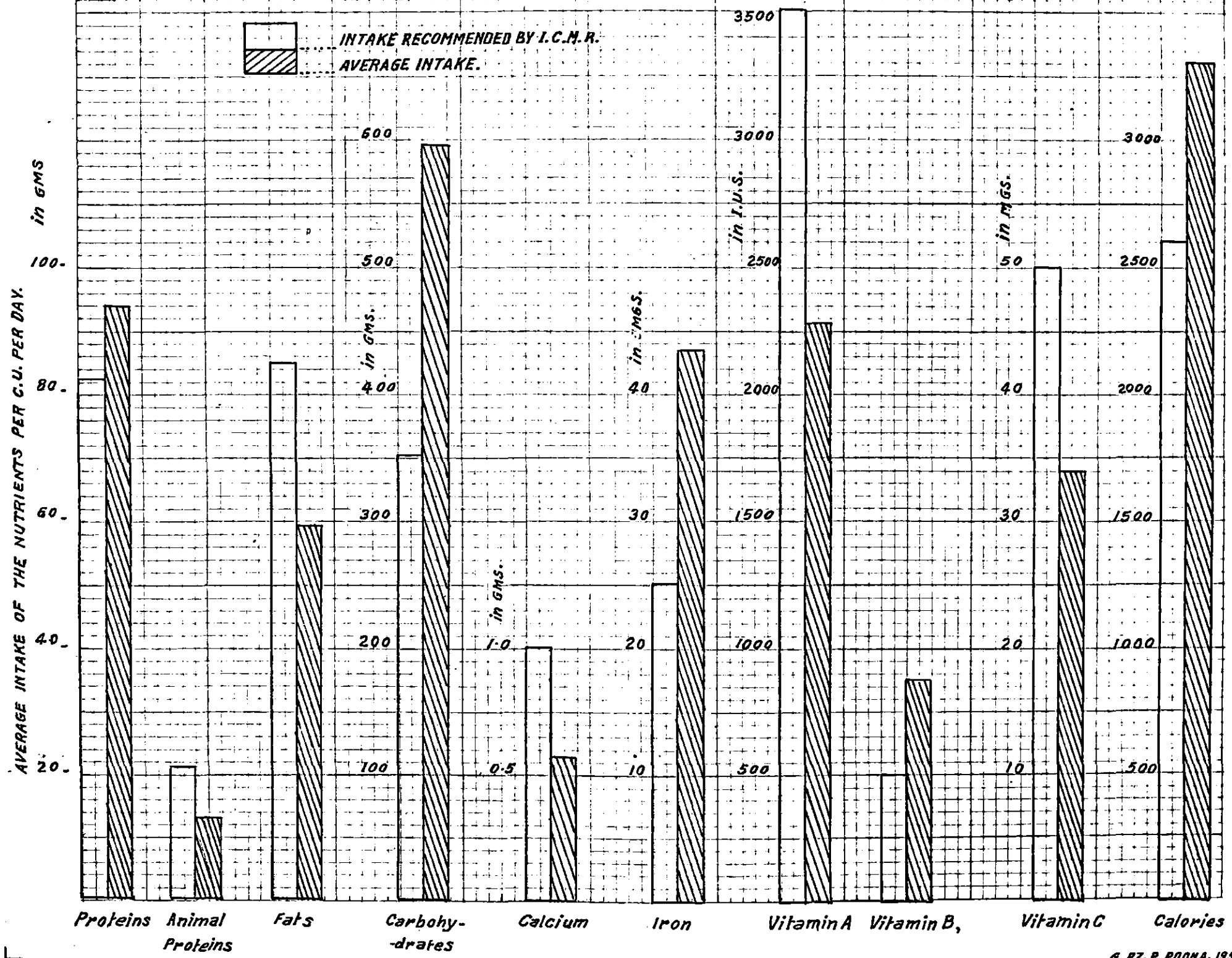


FIG. 2. SHOWING THE AVERAGE CONSUMPTION OF THE NUTRIENTS PER C.U. PER DAY BY THE FAMILIES OF THE INDUSTRIAL WORKERS AT KURLA.



APPENDIX A.

DEPARTMENT OF NUTRITION, GOVERNMENT OF BOMBAY.

Schedule for Diet Survey.

Serial No.

Name of the Head of the family

Address

Rent Rs.....No. of rooms occupied

Caste or Community.....Occupation.....

Mother tongue.....Vegetarian/Non-vegetarian,

Place of origin: Village.....District

How long has the family been staying in Bombay

Total income of the family (per month)

Approximate expenditure on food per month: Home Rs.....Outsider Rs.....

| No. | Name. | Sex. | Age. | Relation with the head of the family. | If earning the income per month. | Whether takes foods outside. | Expenditure on outside food. | Remarks if any. |
|-----|-------|------|------|---------------------------------------|----------------------------------|------------------------------|------------------------------|-----------------|
| 1 | | | | | | | | |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |

Period of Survey:

from

to

General Remarks (including dietary habits).

Living conditions.

Health and personal hygiene.

Date

1955

Name of the Investigator,

TOTAL QUANTITY OF FOODS CONSUMED BY THE FAMILY IN LBS. (GIVE OTHER UNITS, WHEREVER NECESSARY).

| Food Groups | 1st | | 2nd | | 3rd | | 4th | | 5th | | 6th | | 7th | | Total | Remarks. |
|-----------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------|----------|
| | Morn- ing | Even- ing | Morn- ing | Even- ing | Morn- ing | Even- ing | Morn- ing | Even- ing | Morn- ing | Even- ing | Morn- ing | Even- ing | Morn- ing | Even- ing | | |
| (C) Rice (Polished) | | | | | | | | | | | | | | | | |
| (E) Rice (unpolished) | | | | | | | | | | | | | | | | |
| (R) Wheat | | | | | | | | | | | | | | | | |
| (E) Jowar | | | | | | | | | | | | | | | | |
| (A) | | | | | | | | | | | | | | | | |
| (L) Other cereals | | | | | | | | | | | | | | | | |
| (S) | | | | | | | | | | | | | | | | |
| 'Tur' | | | | | | | | | | | | | | | | |
| Pulses 'Chana' | | | | | | | | | | | | | | | | |
| Other pulses | | | | | | | | | | | | | | | | |
| Leafy | | | | | | | | | | | | | | | | |
| Vegetables | | | | | | | | | | | | | | | | |
| Roots Potatoes | | | | | | | | | | | | | | | | |
| and Onions | | | | | | | | | | | | | | | | |
| Tubers Others | | | | | | | | | | | | | | | | |
| Other Vegetables | | | | | | | | | | | | | | | | |
| Fruits | | | | | | | | | | | | | | | | |
| Dryfruit | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------|---|------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Sugar | | | | | | | | | | | | | | | | | | | | | | |
| Jaggery | | | | | | | | | | | | | | | | | | | | | | |
| Vegetable Oils | { | Groundnut oil .. | | | | | | | | | | | | | | | | | | | | |
| | | Til oil .. | | | | | | | | | | | | | | | | | | | | |
| | | Coconut oil .. | | | | | | | | | | | | | | | | | | | | |
| Hydrogenated Vegetable oils .. | | | | | | | | | | | | | | | | | | | | | | |
| Other oils | | | | | | | | | | | | | | | | | | | | | | |
| Butter | | | | | | | | | | | | | | | | | | | | | | |
| Ghee | | | | | | | | | | | | | | | | | | | | | | |
| Milk Products | { | Milk .. | | | | | | | | | | | | | | | | | | | | |
| | | Toned Milk .. | | | | | | | | | | | | | | | | | | | | |
| | | Curds .. | | | | | | | | | | | | | | | | | | | | |
| | | Butter milk .. | | | | | | | | | | | | | | | | | | | | |
| Fleshy foods | { | Fish .. | | | | | | | | | | | | | | | | | | | | |
| | | Fish-dried .. | | | | | | | | | | | | | | | | | | | | |
| | | Meat .. | | | | | | | | | | | | | | | | | | | | |
| | | Eggs .. | | | | | | | | | | | | | | | | | | | | |

| Food groups. | Days | 1st | | 2nd | | 3rd | | 4th | | 5th | | 6th | | 7th | | Total. | Remarks. |
|------------------------------------|------------------|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|--------|----------|
| | | M. | E. | M. | E. | M. | E. | M. | E. | M. | E. | M. | E. | M. | E. | | |
| Nuts and oilseeds. | { Groundnuts ... | | | | | | | | | | | | | | | | |
| | { Coconuts ... | | | | | | | | | | | | | | | | |
| | { Others ... | | | | | | | | | | | | | | | | |
| Condiments | ... | | | | | | | | | | | | | | | | |
| Other foods | ... | | | | | | | | | | | | | | | | |
| Foods taken outside home | ... | | | | | | | | | | | | | | | | |
| Absentees for the particular meals | ... | | | | | | | | | | | | | | | | |
| Guests (with approximate ages) | { Males ... | | | | | | | | | | | | | | | | |
| | { Females ... | | | | | | | | | | | | | | | | |
| | { ... | | | | | | | | | | | | | | | | |

Name of the investigator ...

Period of Surveydays (from.....to.....).

APPENDIX B.

DEPARTMENT OF NUTRITION, GOVERNMENT OF BOMBAY.

Schedule for Rapid Clinical Nutrition Survey.

Serial No. Date

Name School

Age.....Years.....Months. Sex Place

Weight lbs. Height.....inches.

Haemoglobin g/100 ml. Std. Div.

Grade I

Grade II

- (a) Poor musculature.
- (b) Deficient subcutaneous fat.
- (c) Mild anaemia.
- (d) Lack of interest in surroundings.
- (e) Mild signs of not more than one of the specific nutritional disorders or deficiencies mentioned under Group III of Grade III.

Grade III

Group I—Equal weightage—highly significant of malnutrition ;
 Nutritional Oedema (dependent parts or generalized).
 Gross muscular wasting.
 Marked anaemia.
 Xerosis of the cornea.

Group II—Significant of malnutrition.
 Tenderness of the calf
 Red and/or raw tongue.
 Glazed tongue.
 Stomatitis.
 Bleeding gums.
 Angular conjunctivitis (bilateral).

Group III—Less significant.
 Xerosis or pigmentation of conjunctivae.
 Bitot's spots.
 Caries.
 Dry and/or rough skin.
 crazy pavement skin.
 Hyperkeratosis.

Special remarks, if any :

APPENDIX
Result of the diet Survey of

| | | | | |
|--|---|---|---|-----------------------|
| 1. Serial No. of the Family... | 1 | 2 | 3 | 4 |
| 2. Community ... | Mahar | Mahar | Mahar | Gurav |
| 3. Language Spoken ... | All | families | speak | Marathi. |
| 4. Vegetarian/Non-vegetarian | All | families | are | Non- |
| | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. |
| 5. Rent of the tenement ... | 3 13 0 | 3 13 0 | 3 13 0 | 3 13 0 |
| 6. Total income of the Family per mensem. | 95 0 0 | 195 0 0 | 139 0 0 | 285 0 0 |
| 7. Number of members— | | | | |
| Adults | M | 1 | 1+3 | 1 |
| | F | 1 | 1 | 1 |
| Children | M | ... | 2 | 3 |
| | F | ... | 1 | 1 |
| Total | ... | 2 | 5+3 | 6 |
| 8. Total C. Us. of the Family. | 1.9 | 3.7+3.0 | 4.3+0.9 | 5.7+1.4 |
| 9. Income per C. U. per mensem. | 50.0 | 28.1 | 32.3 | 50.0 |
| 10. Number of earning members. | 1 | 2 | 1 | 3 |
| 11. District of origin and period of stay in Bombay. | Usmanabad. 35 years. | Karad. 10 years. | ..... | Ratnagiri. Long time. |
| 12. Number of persons clinically examined. | 2 | 5 | 6 | 6 |
| 13. Period of Diet Survey ... | 16th April 1955 to— 26th April 1955. | 16th April 1955 to— 26th April 1955. | 16th April 1955 to— 26th April 1955. | ..... |
| | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. |
| 14. Approximate expenditure on food. | ..... | 125 0 0 | 120 0 0 | 100—125 |
| 15. Occupation | ... Mill worker. | Mill worker+ Border taken. | ..... | ..... |

C.

Industrial Workers families at Kurla.

| 5 | 6 | 7 | 8 | 9 | 10 |
|--|-----------------|-----------------|-------------------------|-------------------------|---|
| Maratha. | Maratha. | Maratha. | Maratha. | Maratha. | Maratha. |
| vegetarian. | | | | | |
| Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. |
| 3 13 0 | 3 13 0 | 3 13 0 | 3 13 0 | 3 12 0 | 3 13 0 |
| 115 0 0 | 275 0 0 | 120 0 0 | 246 0 0 | 210 0 0 | 213 0 0 |
| $\frac{1}{1}$ | $\frac{4}{2}$ | $\frac{1}{1}$ | $\frac{3+1}{1}$ | $\frac{2}{1}$ | $\frac{2}{2}$ |
| $\frac{1}{..}$ | $\frac{..}{..}$ | $\frac{..}{..}$ | $\frac{..}{2}$ | $\frac{1}{4}$ | $\frac{..}{..}$ |
| $\frac{..}{3}$ | $\frac{..}{6}$ | $\frac{..}{2}$ | $\frac{6+1}{8}$ | $\frac{..}{8}$ | $\frac{..}{4}$ |
| 2.7 | 5.8 | 1.9 | 5.2+1.0 | 6.2 | 3.8 |
| 42.6 | 47 | 63.1 | 41.5 | 33.8 | 56.1 |
| 1 | 3 | 1 | 3 Border taken | 2 | 3 |
| Ratnagiri. 17 years. | .... | Kurla. | Ratnagiri. 45 years. | Ratnagiri. 25 years. | Kolaba. from birth. |
| 2 | 3 | 2 | 7 | 7 | 3 |
|17th April 1955 to 26th April 1955..... | | | | |19th April 1955 to 26th April 1955. |
| Rs. | Rs. | Rs. | Rs. | Rs. | Rs. |
| 70+5 | 150+20 | 50+25 | *+10 | 150+60 | 110+16 |
|Mill-worket. | | | | | |

* Not recorded.

16. Daily consumption of foodstuff per C.U. per day--

| Serial No. of the family | 1 | 2 | 3 | 4 |
|---------------------------------|-----------------------|------|----------|------|
| (i) Rice | 4.5 | 2.8 | 4.3 | 8.4 |
| (ii) Wheat | 13.4 | 11.7 | 9.8 | ... |
| (iii) Jowar | 2.7 | 14.1 | 6.8 | ... |
| (iv) Bajri | 3.0 | ... | 0.6 | 1.9 |
| (v) Other cereals | ... | ... | 0.1 | ... |
| (vi) Total cereals | 23.6 | 28.6 | 21.6 | 10.3 |
| (vii) Tur | 1.4 | 0.7 | 0.2 | 0.9 |
| (viii) Chana and Other pulses | 1.1 | 0.5 | 0.2 | 0.5 |
| (ix) Total pulses | 2.5 | 1.2 | 0.4 | 1.4 |
| (x) Leafy vegetables | 1.0 | 0.1 | 0.5 | ... |
| (xi) Root vegetables | 4.7 | 1.9 | 1.8 | 2.0 |
| (xii) Other vegetables | 2.1 | 0.8 | 0.9 | 1.5 |
| (xiii) Fruits | ... | 0.1 | 0.3 | ... |
| (xiv) Sugar and jaggery | 4.7 | 2.7 | 2.9 | 1.5 |
| (xv) Vegetable oils fats | 2.2 | 0.7 | 0.9 | 0.6 |
| (xvi) Butter and ghee | ... | ... | ... | ... |
| (xvii) Milk | 4.2* | 2.7* | 0.8+0.2* | 0.6 |
| (xviii) Fish | { F. 0.04 { D. ... | 0.1 | 0.5 | 0.1 |
| | | 0.04 | ... | 0.2 |
| (xix) Meat | 0.6 | 0.3 | 1.4 | 0.5 |
| (xx) Eggs | 0.2 | 0.1 | 0.2 | ... |
| (xxi) Nuts and oilseeds | 0.3 | 0.1 | 0.4 | 0.6 |
| (xxii) Betel leaves | ... | ... | 0.4 | ... |
| (xxiii) Green chillies | 0.3 | 0.1 | 0.4 | ... |

*Goat's milk.

C—contd.

| 5 | 6 | 7 | 8 | 9 | 10 |
|------|----------|------|----------|----------|------|
| 12.3 | 3.9 | 14.7 | 8.3 | 9.3 | 7.8 |
| ... | 5.7 | ... | 0.1 | 2.0 | 3.2 |
| ... | ... | ... | ... | ... | ... |
| 5.7 | 19.7 | ... | 8.1 | ... | 9.0 |
| ... | ... | ... | ... | ... | ... |
| 18.0 | 29.3 | 14.7 | 16.5 | 11.8 | 20.0 |
| 1.5 | 1.4 | 2.5 | 1.0 | 1.5 | 1.5 |
| 0.6 | 0.5 | 1.2 | 0.5 | 0.7 | 0.6 |
| 2.1 | 1.9 | 3.7 | 1.5 | 2.2 | 2.1 |
| 0.2 | 0.8 | 0.1 | 0.4 | 0.9 | 0.4 |
| 1.9 | 3.2 | 5.7 | 2.2 | 2.5 | 2.4 |
| 0.7 | 1.8 | 3.1 | 1.1 | 1.3 | 0.1 |
| ... | ... | ... | ... | ... | ... |
| 1.9 | 2.3 | 6.9 | 1.6 | 1.2 | 1.2 |
| 0.9 | 1.1 | 1.8 | 0.7 | 0.7 | 0.8 |
| ... | ... | ... | ... | ... | ... |
| 0.7 | 5.4+1.2† | 2.3 | 0.6 | 0.4+2.2‡ | 0.9 |
| 1.8 | ... | ... | 0.3 | 0.2 | 0.2 |
| 0.2 | 0.1 | ... | 0.8 | 0.02 | 0.1 |
| 2.5 | 1.5 | 1.7 | 0.5+0.5‡ | ... | ... |
| ... | ... | ... | ... | 0.2 | ... |
| 1.4 | 0.3 | 2.0 | 0.5 | 0.4 | 0.1 |
| ... | ... | ... | ... | 0.5 | 0.6 |
| ... | 0.1 | ... | 0.2 | ... | ... |

†Buttermilk

‡Liver

§'Toned' milk.

APPENDIX

| | | | | | | |
|--|----------------------|---------------|--------------------|------------------------|------------|----------------|
| 1. Serial No. of the Family... | 11 | 12 | 13 | 14 | 15 | 16 |
| 2. Community .. | Mahar | Maratha | | Backward.... | | |
| 3. Language Spoken | | | | | | |
| 4. Vegetarian/Non-vegetarian | | | | | | |
| | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. |
| 5. Rent of the tenament .. | 3 12 0 | 3 13 2 | 3 13 0 | 3 13 0 | 6 9 0 | 3 4 6 |
| 6. Total Income of the family p.m. | 110 | 300 | 110 | 100 | 235 | 100 |
| 7. Number of members .. | | | | | | |
| Adults M .. | 1 | 3 | 1 | 2 | 5 | 2 |
| F .. | 3 | 3 | 1 | 2 | 3 | 1 |
| Children M .. | 2 | .. | 3 | 1 | 1 | 1 |
| F .. | 3 | 2 | .. | .. | 2 | 1 |
| Total .. | 9 | 8 | 5 | 5 | 11 | 5 |
| 8. Total C.U.s. of the Family | 6.3 | 7.1 | 3.4 | 4.5 | 9.0 | 4.0 |
| 9. Income per C. U. p.m. .. | 17.5 | 42.2 | 32.4 | 22.2 | 29.3 | 25.0 |
| 10. Number of earning members. | 1 | 5 | 1 | 1 | 3 | 1 |
| 11. District of origin and period of stay in Bombay. | Kolaba 15 yrs. | Poona 15 yrs. | Satara 20 Yrs. | Satara 12 Yrs. | | Satara 12 Yrs. |
| 12. Number of persons clinically examined. | 7 | 7 | 5 | 4 | 9 | 5 |
| 13. Period of Diet Survey .. | 19-4-55 to 20-4-55 | April 1955 | 20-4-55 to 27-4-55 | April 1955 | April 1955 | April-May 1955 |
| | Rs. | Rs. | Rs. | * | Rs. | Rs. |
| 14. Approximate expenditure on food | 95+8 | 80+10 | 95 | * | 105 | 70+11 |
| 15. Occupation .. | .. Mill worker | | | Unskilled worker | | |

* Not recorded.

G—contd.

| 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
|-----------------------|-----------------------|-------------------------|---------------|----------------|--------------------------|---------------------------|----------------|----------------|
|Mahar | | |Maratha | | | | | |
|Marathi | | | | | | | | |
|Non-Vegetarian | | | | | | | | |
| Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. |
| 6 9 0 | 6 9 0 | 6 9 0 | 6 9 0 | 6 9 0 | 4 0 0 | 3 4 6 | 3 4 6 | 3 13 0 |
| Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. |
| 170 | 235 | 102 | 90 | 108 | 150 | 250 | 105 | 117 |
| $\frac{1+2}{1}$ | $\frac{3}{3}$ | $\frac{1}{2}$ | $\frac{1}{1}$ | $\frac{1}{1}$ | $\frac{1}{1}$ | $\frac{3}{2}$ | $\frac{2}{1}$ | $\frac{1}{2}$ |
| $\frac{1}{2}$ | $\frac{2}{..}$ | $\frac{1}{..}$ | $\frac{1}{3}$ | $\frac{3}{1}$ | $\frac{..}{1}$ | $\frac{..}{2}$ | $\frac{3}{2}$ | $\frac{1}{..}$ |
| 5+2 | 8 | 4 | 6 | 6 | 3 | 7 | 8 | 4 |
| 3 3 | 6 5 | 3 2 | 4 1 | 4 4 | 2 6 | 6 4 | 5 8 | 3 1 |
| 29 0 | 36 1 | 31 9 | 22 0 | 24 5 | 57 7 | 39 1 | 18 1 | 37 7 |
| 2 | 2 | 1 | 1 | 1 | 1 | 2 | 1 | 1 |
| N. Satara | S. Satara 17 yrs. | Poona 20 Yrs. | .. | Jamkhed | Panve- vel 30 Yrs. | S. Satara 15 Yrs. | S. Satara | Kurla. |
| 7 | 6 | 2 | 6 | 6 | 2 | 6 | 7 | 4 |
| April- May 1955 | April- May 1955 | 28-4-55 to 3-5-55 | Rs. | April-May 1955 | Rs. | 1-5-55 to 8-5-55 | Rs. | May 1955 |
| * | 100+6 | *+5 | 75 | * | 40+4 | 130 | * | 60+3 |
|Mill worker..... | | |Fitter | | | Fitter Soap factory | Mill worker | Weaver |

| Serial No. of the Family. | 11 | 12 | 13 | 14 | 15 | 16 |
|--------------------------------------|------|------|--------|------|------|------|
| (i) Rice | 8.7 | 2.4 | 5.7 | 3.2 | 2.9 | 1.7 |
| (ii) Wheat | 0.8 | 4.2 | 8.8 | 8.3 | 7.2 | 5.6 |
| (iii) Jowar | 11.7 | 10.4 | 17.3 | 21.4 | 12.7 | 17.9 |
| (iv) Bajri | ... | ... | 1.2 | ... | ... | ... |
| (v) Other cereals | ... | ... | ... | ... | 0.1 | 0.1 |
| (vi) Total cereals | 21.2 | 17.0 | 33.0 | 32.9 | 22.9 | 25.5 |
| (vii) Tur | 1.3 | 1.0 | 1.1 | 1.2 | 0.2 | 0.6 |
| (viii) Chana and Other pulses | ... | 0.8 | 0.7 | 0.2 | 0.6 | 0.4 |
| (ix) Total pulses | 1.3 | 1.8 | 1.8 | 1.4 | 0.8 | 1.0 |
| (x) Leafy vegetables | 0.4 | 0.1 | 1.0 | 0.5 | 0.4 | 0.5 |
| (xi) Root vegetable | 1.4 | 0.8 | 3.0 | 1.9 | 0.8 | 1.3 |
| (xii) Other vegetables | 0.5 | 0.4 | 2.1 | 1.9 | 0.8 | 0.9 |
| (xiii) Fruits | ... | ... | ... | ... | ... | ... |
| (xiv) Sugar and jaggery | 1.6 | 3.4 | 4.4 | 2.1 | 2.3 | 1.6 |
| (xv) Vegetable oils/fats | 0.7 | 1.0 | 1.4 | 1.2 | 1.1 | 0.8 |
| (xvi) Butter and ghee | ... | ... | ... | ... | ... | ... |
| (xvii) Milk | 1.4* | 2.6* | 1.7 | 0.5 | 0.4 | 0.8 |
| F. | ... | ... | +0.1 | ... | ... | ... |
| D. | ... | ... | Curds. | ... | ... | ... |
| (xviii) Fish | 0.7 | 0.3 | 0.7 | 0.3 | ... | ... |
| ... .. | 0.5 | ... | 0.4 | ... | 0.01 | ... |
| (xix) Meat ... F. | 0.4 | ... | 0.7 | 0.9 | 1.1 | 0.5 |
| (xx) Eggs ... D. | ... | 0.2 | 0.05 | ... | ... | ... |
| (xxi) Nuts and oilseeds | 0.2 | ... | 0.5 | 0.2 | 0.3 | 0.1 |
| (xxii) Betal leaves | 0.3 | 0.3 | ... | ... | 0.3 | 0.6 |
| (xxiii) Green chillies | ... | 0.04 | 0.1 | ... | ... | ... |

*Goats milk.

C—contd.

| 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
|--------|------|---------|--------|------|-------|------|------|---------|
| 6.3 | 1.9 | 5.2 | 6.5 | 6.6 | 6.0 | 4.6 | 5.3 | 9.8 |
| 6.9 | 2.2 | 7.4 | 8.4 | 8.8 | 11.2 | 6.2 | 4.9 | 8.2 |
| 7.3 | 19.7 | ... | ... | ... | ... | 20.1 | 15.5 | ... |
| 10.6 | 1.0 | 4.3 | 11.3 | 15.6 | ... | ... | ... | ... |
| 0.2 | 0.03 | ... | 0.3 | 0.3 | ... | ... | ... | ... |
| 31.3 | 24.8 | 16.9 | 26.5 | 31.3 | 17.2 | 30.9 | 25.7 | 18.0 |
| 0.3 | 0.3 | 1.0 | 0.3 | 1.2 | 0.4 | 0.8 | 0.8 | 1.5 |
| 0.6 | 0.3 | 0.2 | 0.4 | 0.8 | 1.2 | 0.4 | 0.2 | 1.1 |
| 1.1 | 0.6 | 1.2 | 0.9 | 2.0 | 1.6 | 1.2 | 1.0 | 2.6 |
| 0.7 | 0.1 | 1.4 | 1.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.03 |
| 1.7 | 1.1 | 4.6 | 1.6 | 2.8 | 2.9 | 1.2 | 1.2 | 3.1 |
| 2.7 | 1.2 | 3.5 | 0.2 | 0.8 | 0.6 | 1.7 | 1.3 | 0.6 |
| 1.3 | 0.1 | 1.3 | 0.8 | ... | NW. | 0.4 | ... | 0.1 |
| 1.1 | 1.3 | 2.7 | 4.4 | 1.4 | 2.6 | 2.3 | 2.9 | 2.7 |
| 0.6 | 0.8 | 2.1 | 1.7 | 1.2 | 1.0 | 1.6 | 0.7 | 1.8 |
| ..... | ... | 0.03 | ... | ... | ... | ... | ... | ... |
| 2.8 | 0.4 | 1.2+0.1 | 2.4 | ... | ... | ... | ... | ... |
| +0.4 | ... | +0.5† | +0.2 | 2.1 | 1.5 | 3.2 | 1.3 | 0.6+2.1 |
| curds. | ... | curds. | curds. | ... | ... | ... | +0.1 | +0.3† |
| ..... | ... | 1.3 | 0.3 | 0.3 | 1.7 | 0.3 | ... | 0.3 |
| 0.02 | 0.1 | 0.4 | 0.1 | 0.1 | ... | ... | 0.1 | 0.1 |
| 0.9 | 1.4 | 0.7 | 2.5 | 0.7 | 1.2 | 2.3 | 0.8 | 0.1 |
| ..... | 0.1 | ... | 0.3 | NW. | ... | 0.5 | ... | ..... |
| 0.2 | 0.2 | 0.2 | 0.4 | 0.4 | 0.3 | 0.3 | 0.1 | 0.9 |
| 0.3 | 0.1 | 0.6 | 0.2 | 0.2 | ... | 0.2 | 0.3 | 0.3 |
| 0.1 | 0.03 | 0.2 | ... | ... | ..... | 0.1 | 0.2 | 0.1 |

†Buttermilk.

APPENDIX

| 1. Serial number of the Family. | 26 | 27 | 28 | 29 | 30 | 31 | | |
|--|-------------------------|---------------------|--------------|-------------------|-------------------------|--------------|-----|---|
| 2. Community | ... | ..... | ..... | ..... | ..... | ..... |  |  |
| 3. Language Spoken | ... | ..... | ..... | ..... | ..... | ..... |  |  |
| 4. Vegetarian/Non-vegetarian. | ..... | ..... | ..... | ..... | ..... | ..... |  |  |
| | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | | |
| 5. Rent of the tenement | 3 0 0 | 6 9 0 | ... | 3 13 0 | 6 9 0 | 3 13 0 | | |
| 6. Total Income of the Family per mensem. | 150 0 0 | 200 0 0 | 110 0 0 | 110 0 0 | 117 0 0 | 215 0 0 | | |
| 7. Number of members— | | | | | | | | |
| Adults | M | ... | 2 | 3 | 1 | 1 | 2 | 4 |
| | F | ... | 1 | 2 | 1 | 1 | 1 | 1 |
| Children | M | ... | 1 | 1 | 1 | 2 | ... | 1 |
| | F | ... | 2 | 1 | 1 | 1 | 2 | 1 |
| | Total | ... | 6 | 7 | 4 | 5 | 5 | 7 |
| 8. Total C. Us. of the Family. | 4·7 | ... | 6·1 | 3·7 | 3·9 | 4·0 | 5·3 | |
| 9. Income per C. U. per mensem. | 31·9 | 32·8 | 29·7 | 28·2 | 29·2 | 40·6 | | |
| 10. Number of earning members. | 1 | 2 | 1 | 1 | 1 | 3 | | |
| 11. District of origin and period of stay in Bombay. | South Satara. 16 years. | Hydrabad. longtime. | ... | Satara. 15 years. | South Satara. 13 years. | Ratna. giri. | | |
| 12. Number of persons clinically examined. | 6 | 7 | 4 | 5 | 3 | 3 | | |
| 13. Period of Diet Survey | May | 1955 | | | 7th May | 1955 to | | |
| | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | | |
| 14. Approximate expenditure on food. | 80+10 | * | 70+2-8-0 | * 2-8-0 | * 7-8-0* | 13-0-0 | | |
| 15. Occupation | ... Crane driver. | Mukadam. | Mill-worker. | ... | ... | ... | | |

* Not recorded.

C- contd.

| 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
|---------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Mahar..... | | | | | | | | |
| Marathi..... | | | | | | | | |
| Non-vegetarian..... | | | | | | | | |
| Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. |
| 4 10 0 | ..... | 4 6 0 | 4 6 0 | 4 10 0 | 4 10 0 | 4 6 0 | 4 6 0 | 4 10 0 |
| 265 0 0 | 100 0 0 | 285 0 0 | 190 0 0 | 105 0 0 | 170 0 0 | 110 0 0 | 105 0 0 | 140 0 0 |

| | | | | | | | | |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| $\frac{2}{2}$ | $\frac{1}{1}$ | $\frac{4}{2}$ | $\frac{2}{1}$ | $\frac{1}{1}$ | $\frac{2}{1}$ | $\frac{1}{2}$ | $\frac{1}{1}$ | $\frac{2}{2}$ |
| ... | ... | ... | $\frac{1}{2}$ | $\frac{3}{1}$ | ... | ... | ... | ... |
| $\frac{1}{1}$ | $\frac{1}{1}$ | $\frac{1}{1}$ | $\frac{2}{2}$ | $\frac{1}{1}$ | $\frac{1}{1}$ | ... | ... | ... |
| 5 | 3 | 7 | 6 | 6 | 4 | 3 | 2 | 4 |
| 4.6 | 2.7 | 6.9 | 5.0 | 5.9 | 3.6 | 2.8 | 1.9 | 3.9 |
| 57.6 | 37.0 | 41.3 | 38.0 | 17.8 | 47.2 | 39.3 | 55.3 | 35.9 |
| 2 | 1 | 3 | 2 | 1 | 2 | 1 | 1 | 3 |

Nasik. 7 years. Satara. 20 years. Auranga- bad. 30 years. Ahmed- nagar. 16 years. Auranga- bad. 10 years. Ahmed- nagar. 27 years. Kolaba. 20 years. Ratnagiri. 25 years. Ahmed- nagar. 7 years.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 5 | 3 | 6 | 6 | 2 | 4 | 3 | 2 | 3 |
|---|---|---|---|---|---|---|---|---|

May 1955

| Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. |
|-----|-----|-----------|------------|-----|-----------|-----|-----|-----|
| * | * | 168+7-8-0 | * 15 0 0 * | * | 65+3-12-0 | * | | 5 |

.....mill worker and Domestic servant.....

61: Daily Consumption of food stuffs per C. V. per day—

| Serial No. of the family | 26 | 27 | 28 | 29 | 30 | 31 |
|--------------------------------------|------|-------------|------|------|------|------|
| (i) Rice | 1.4 | 3.7 | 5.3 | 4.5 | 9.0 | 11.1 |
| (ii) Wheat | 7.4 | 8.0 | 3.7 | 5.5 | 7.3 | 6.2 |
| (iii) Jowar | 13.0 | <i>Nil.</i> | 17.5 | 12.0 | 13.7 | ... |
| (iv) Bajri | ... | 6.0 | ... | 0.5 | ... | 4.7 |
| (v) Other cereals | 0.2 | 0.1 | 0.1 | 0.2 | 1.0 | ... |
| (vi) Total cereals | 22.0 | 17.8 | 29.6 | 22.7 | 31.0 | 22.0 |
| (vii) Tur | 1.2 | 0.4 | 0.3 | 0.6 | 2.1 | 1.5 |
| (viii) Chana and other pulses | ... | 0.3 | 1.4 | 0.6 | 0.1 | 1.2 |
| (ix) Total pulses | 1.2 | 0.7 | 1.7 | 1.2 | 2.2 | 2.7 |
| (x) Leafy vegetables | 0.1 | 0.1 | 0.6 | 0.8 | 0.1 | 0.1 |
| (xi) Root vegetables | 0.6 | 0.7 | 1.3 | 1.9 | 5.2 | 1.9 |
| (xii) Other vegetables | 0.5 | 0.1 | 1.5 | 0.7 | 4.3 | 1.4 |
| (xiii) Fruits | ... | 3.8 | ... | 1.0 | ... | ... |
| (xiv) Sugar and Jaggery | 2.3 | 1.6 | 3.2 | 2.7 | 2.1 | 1.7 |
| (xv) Vegetable oil's fats | 0.6 | 1.3 | 1.9 | 1.2 | 1.7 | 1.3 |
| (xvi) Butter and ghee | ... | ... | ... | ... | ... | ... |
| (xvii) Milk | 1.1* | 1.5+0.2 | 1.2 | 1.3 | 3.7 | 0.8 |
| (xviii) Fish | ... | ... | 2.0 | ... | ... | 0.2 |
| { F. | ... | ... | 2.0 | ... | ... | 0.2 |
| { D. | 0.2 | 0.3 | 0.1 | ... | ... | 0.1 |
| (xix) Meat | 1.7 | 2.4 | 0.9 | 1.1 | ... | ... |
| (xx) Eggs | ... | 0.4 | ... | ... | ... | ... |
| (xxi) Nuts and oilseeds | 0.1 | 0.4 | 0.4 | 0.1 | 0.4 | 0.9 |
| (xxii) Betal leaves | ... | ... | 0.4 | 0.3 | 0.3 | ... |
| (xxiii) Green chillies | 0.03 | 0.2 | 0.03 | 0.1 | 0.1 | 0.03 |

*Toned

C—contd.

| 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
|------|------|------|------|------|------|------|------|------|
| 3·1 | 4·8 | 7·2 | 6·1 | ... | 5·5 | 5·8 | 14·4 | ... |
| 8·7 | 5·4 | 5·4 | 6·9 | 18·6 | 9·2 | 3·5 | 3·4 | 3·5 |
| ... | 12·7 | 7·5 | 8·7 | ... | 12·1 | ... | 9·4 | 16·7 |
| 5·5 | ... | ... | ... | ... | ... | 6·5 | ... | ... |
| ... | ... | ... | 0·3 | ... | ... | ... | ... | ... |
| 17·3 | 22·9 | 20·1 | 22·0 | 18·6 | 26·8 | 15·8 | 27·2 | 20·2 |
| ... | 0·9 | ... | 0·7 | 2·5 | 1·0 | 0·3 | 3·6 | 1·0 |
| 0·6 | 0·4 | 1·2 | 1·1 | 3·5 | 0·2 | 1·0 | 0·3 | ... |
| 0·6 | 1·3 | 1·2 | 1·8 | 6·0 | 1·2 | 1·3 | 3·9 | 1·0 |
| 1·3 | ... | 0·7 | 0·5 | 1·2 | 0·9 | 0·4 | ... | 0·6 |
| 3·3 | 2·2 | 1·8 | 1·7 | 3·0 | 1·8 | 2·5 | 7·6 | 1·3 |
| 4·7 | 2·3 | 0·1 | 0·8 | ... | 1·5 | 0·7 | 2·2 | ... |
| ... | ... | ... | ... | ... | ... | ... | ... | 1·0 |
| 2·1 | 3·5 | 2·2 | 2·5 | 4·7 | 2·3 | 2·7 | 3·8 | 2·3 |
| 1·5 | 1·4 | 1·0 | 1·2 | 1·8 | 1·6 | 0·8 | 2·8 | 1·0 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 2·5 | 1·5 | 2·2* | 1·0 | 1·8 | 0·9 | 1·1 | 2·1 | ... |
| 1·6 | 1·6 | 0·7 | 0·6 | 0·7 | ... | 0·9 | 0·6 | ... |
| 0·04 | 0·03 | 0·1 | 0·1 | ... | 0·1 | ... | 1·1 | 0·2 |
| 0·9 | 0·4 | 1·2 | 1·6 | ... | 2·2 | 0·3 | 2·4 | ... |
| ... | ... | ... | ... | ... | ... | ... | 0·9 | ... |
| 0·2 | 0·1 | 0·2 | 0·5 | ... | 0·5 | 0·4 | 2·1 | 0·02 |
| ... | 0·4 | ... | 0·2 | 0·4 | ... | 0·4 | 0·5 | 0·3 |
| 0·3 | ... | 0·3 | 0·1 | 0·2 | 0·2 | 0·03 | ... | 0·1 |

Milk.

RESULTS OF THE DIET SURVEY OF INDUSTRIAL

Chemical Composition of Average

| 1. Family Number ... | 1 | 2 | 3 | 4 |
|--|-------|-------|-------|-------|
| 2. Total Proteins ... (g) | 104.4 | 103.1 | 83.4 | 44.5 |
| 3. Animal Proteins ... (,,) | 8.6 | 6.0 | 12.5 | 6.8 |
| 4. Fats ... (,,) | 89.1 | 39.9 | 47.2 | 32.1 |
| 5. Carbohydrates ... (,,) | 693.8 | 706.1 | 553.8 | 302.1 |
| 6. Calcium ... (,,) | 0.84 | 0.55 | 0.48 | 0.26 |
| 7. Phosphorus ... (,,) | 2.48 | 2.58 | 1.95 | 0.86 |
| 8. Iron ... (mg) | 48.5 | 50.2 | 38.3 | 16.6 |
| 9. Vitamin A ... (I. U.) | 2,659 | 1,308 | 2,557 | 292 |
| 10. Vitamin B ₁ ... (,,) | 1,103 | 1,136 | 852 | 295 |
| 11. Vitamin C ... (mg)... | 58 | 20 | 30 | 19 |
| 12. Calories ... | 3,994 | 3,596 | 2,973 | 1,675 |
| 13. <i>Distribution of Calories in percentage—</i> | | | | |
| Proteins ... | 10 | 11 | 11 | 11 |
| Fats ... | 20 | 10 | 14 | 17 |
| Carbohydrates | 70 | 79 | 75 | 72 |

WORKERS' FAMILIES AT KURLA.

Daily Diets of Individual Families.

| 5 | 6 | 7 | 8 | 9 | 10 |
|-------|-------|-------|-------|-------|-------|
| 92·8 | 125·5 | 79·3 | 70·8 | 52·0 | 78·8 |
| 28·8 | 16·0 | 11·7 | 12·2 | 5·2 | 3·7 |
| 64·5 | 82·2 | 89·3 | 44·1 | 31·8 | 42·1 |
| 484·7 | 699·3 | 325·5 | 425·8 | 337·1 | 492·4 |
| 9·47 | 1·03 | 0·59 | 0·39 | 0·49 | 0·47 |
| 1·69 | 3·21 | 1·42 | 1·54 | 1·03 | 1·84 |
| 33·4 | 71·3 | 25·9 | 34·7 | 21·1 | 41·2 |
| 844 | 2,768 | 752 | 4,372 | 2,926 | 2,064 |
| 541 | 1,127 | 526 | 515 | 387 | 680 |
| 17 | 44 | 50 | 29 | ··38 | 20 |
| 2,890 | 4,039 | 3,623 | 2,383 | 1,842 | 2,661 |
| 13 | 13 | 0 | 12 | 11 | 12 |
| 20 | 18 | 22 | 17 | 16 | 14 |
| 67 | 69 | 69 | 71 | 73 | 74 |

| 1. Family Number .. | 11 | 12 | 13 | 14 | 15 | 16 |
|-----------------------------------|-------|-------|-------|-------|-------|-------|
| 2. Total Proteins ..(g) | 83.3 | 67.4 | 131.8 | 117.7 | 81.6 | 87.7 |
| 3. Animal Proteins ..(,,) | 15.1 | 5.4 | 16.3 | 7.3 | 0.4 | 3.6 |
| 4. Fats ..(,,) | 35.3 | 42.5 | 68.7 | 56.9 | 50.6 | 40.5 |
| 5. Carbohydrates ..(,,) | 532.3 | 490.0 | 868.8 | 785.4 | 564.7 | 597.4 |
| 6. Calcium ..(,,) | 0.40 | 0.44 | 0.73 | 0.55 | 0.42 | 0.50 |
| 7. Phosphorus ..(,,) | 1.69 | 1.60 | 3.01 | 1.86 | 1.98 | 2.20 |
| 8. Iron ..(mg) | 35.0 | 35.2 | 62.4 | 60.5 | 40.8 | 47.8 |
| 9. Vitamin A ..(I.U.) | 2,006 | 2,000 | 2,661 | 1,847 | 2,126 | 3,246 |
| 10. Vitamin B ₁ ..(,,) | 659 | 669 | 1,258 | 1,260 | 893 | 975 |
| 11. Vitamin C ..(mg) | 18 | 11 | 52 | 31 | 18 | 22 |
| 12. Calories | 2,780 | 2,812 | 4,620 | 4,125 | 3,040 | 3,104 |

13. *Distribution of Calories (in percentage)*—

| | | | | | | |
|------------------|----|----|----|----|----|----|
| Proteins .. | 12 | 10 | 12 | 11 | 11 | 11 |
| Fats .. | 11 | 15 | 13 | 13 | 15 | 12 |
| Carbohydrates .. | 77 | 75 | 75 | 76 | 74 | 77 |

| 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 115.8 | 88.3 | 85.2 | 111.3 | 125.2 | 83.8 | 122.6 | 91.1 | 76.7 |
| 8.7 | 9.6 | 19.3 | 20.6 | 10.8 | 19.3 | 19.7 | 7.2 | 6.5 |
| 52.0 | 45.4 | 79.4 | 89.4 | 73.5 | 46.3 | 79.5 | 38.6 | 68.5 |
| 713.7 | 575.7 | 483.5 | 691.6 | 718.1 | 476.1 | 749.8 | 661.5 | 636.8 |
| 0.75 | 0.40 | 0.71 | 0.78 | 0.75 | 0.53 | 0.75 | 0.47 | 0.56 |
| 2.94 | 2.13 | 1.79 | 2.66 | 3.09 | 1.78 | 2.83 | 2.16 | 1.64 |
| 63.5 | 46.2 | 40.5 | 58.0 | 66.3 | 28.7 | 56.7 | 45.1 | 29.3 |
| 3,243 | 1,536 | 4,253 | 3,545 | 2,426 | 1,022 | 2,643 | 2,297 | 1,484 |
| .117 | 887 | 676 | 963 | 1,176 | 776 | 1,169 | 916 | 695 |
| 55 | 17 | 90 | 40 | 23 | 23 | 31 | 29 | 22 |
| 3,786 | 3,064 | 2,989 | 4,016 | 4,034 | 2,656 | 4,205 | 3,319 | 3,030 |
| 12 | 12 | 11 | 11 | 13 | 12 | 12 | 11 | 10 |
| 12 | 13 | 24 | 20 | 16 | 16 | 17 | 10 | 20 |
| 76 | 75 | 65 | 69 | 71 | 72 | 71 | 79 | 70 |

| | | | | | | | |
|--|-----|-------|-------|-------|-------|-------|-------|
| 1. Family Number | ... | 26 | 27 | 28 | 29 | 30 | 31 |
| 2. Total Proteins (g) | ... | 88.6 | 84.1 | 119.8 | 85.0 | 115.7 | 86.1 |
| 3. Animal Proteins (g) | ... | 12.9 | 20.3 | 20.4 | 7.3 | 4.4 | 3.6 |
| 4. Fats (g) | ... | 37.9 | 68.0 | 79.5 | 53.2 | 73.4 | 61.6 |
| 5. Carbohydrates (g) | ... | 546.3 | 440.7 | 752.5 | 591.3 | 793.6 | 568.2 |
| 6. Calcium (g) | ... | 0.45 | 0.55 | 0.64 | 0.53 | 0.71 | 0.44 |
| 7. Phosphorus (g) | ... | 2.03 | 1.86 | 2.68 | 2.01 | 2.76 | 1.95 |
| 8. Iron (mg) | ... | 41.2 | 37.6 | 58.5 | 42.5 | 54.3 | 38.1 |
| 9. Vitamin A (I U.) | ... | 1,067 | 1,662 | 3,106 | 2,808 | 2,131 | 874 |
| 10. Vitamin B ₁ (I. U.) | ... | 913 | 765 | 1,100 | 860 | 1,191 | 780 |
| 11. Vitamin C (mg) | ... | 10 | 45 | 30 | 42 | 59 | 21 |
| 12. Calories | ... | 2,880 | 2,711 | 4,205 | 3,183 | 4,298 | 3,172 |
| 13. <i>Distribution of Calories (in percentage)—</i> | | | | | | | |
| Proteins | ... | 12 | 12 | 11 | 11 | 11 | 11 |
| Fats | ... | 12 | 23 | 17 | 15 | 15 | 17 |
| Carbohydrates | ... | 76 | 65 | 72 | 74 | 74 | 72 |

| 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 83.6 | 92.2 | 82.1 | 93.0 | 106.1 | 105.6 | 66.7 | 144.0 | 72.0 |
| 18.6 | 14.6 | 14.7 | 14.9 | 6.7 | 12.0 | 8.7 | 37.8 | 2.8 |
| 65.3 | 56.1 | 45.3 | 58.1 | 66.9 | 72.9 | 43.1 | 131.8 | 39.8 |
| 451.8 | 618.0 | 521.8 | 575.6 | 624.5 | 661.3 | 438.3 | 808.9 | 514.6 |
| 0.66 | 0.51 | 0.48 | 0.55 | 0.85 | 0.61 | 0.41 | 0.89 | 0.37 |
| 1.93 | 2.06 | 1.77 | 2.02 | 2.34 | 2.39 | 1.54 | 2.65 | 1.77 |
| 39.2 | 41.0 | 33.3 | 39.8 | 54.3 | 48.3 | 32.7 | 50.7 | 40.3 |
| 2,531 | 1,969 | 1,556 | 1,921 | 3,723 | 2,133 | 2,240 | 2,836 | 2,532 |
| 757 | 858 | 729 | 869 | 1,170 | 1,091 | 542 | 987 | 794 |
| 83 | 24 | 32 | 25 | 41 | 43 | 24 | 47 | 29 |
| 2,730 | 3,346 | 2,824 | 3,197 | 3,525 | 3,728 | 2,408 | 4,998 | 2,704 |
| 12 | 11 | 12 | 12 | 12 | 11 | 11 | 11 | 11 |
| 22 | 15 | 14 | 16 | 17 | 18 | 16 | 24 | 13 |
| 66 | 74 | 74 | 72 | 71 | 71 | 73 | 65 | 76 |

APPENDIX D.

Foodstuffs, their botanical names and equivalents in regional languages

| Name of foodstuffs. | Botanical name. | Hindustani. | Kanarese. | Marathi. | Gujarati. |
|---------------------|--------------------------------|-----------------|-------------------|--------------------|----------------------|
| 1. Bajra or cambu | ... Pennisetum typhoideum | ... Bajra | ... .. | ... Bajri | ... Bajr. |
| 2. Cholam | ... Sorghum vulgare | ... Juar | ... Jola | ... Jwari | ... Juar. |
| 3. Rice | ... Oryza sativa | ... Chawal | ... Kotnuda Akki. | ... Tandool | ... Chokha. |
| 4. Wheat whole | ... Triticum vulgare | ... Gehum | ... Godhi | ... Gahu | ... Ghau. |
| 5. Bengal gram | ... Cicer arietinum | ... Chana | ... Kadale | ... Hurbura | ... Chana. |
| 6. Black gram | ... Phaseolous mungo | ... Urd | ... Bili Uddu | ... Udid | ... Adud. |
| 7. Cow gram | ... Vigna catiang | ... Lobia Bada | ... Thadeguni | ... Chaoli | ... Chola. |
| 8. Field bean | ... Dolichos lablab | ... Val | ... Avare | ... Walpapdi | ... Wal. |
| 9. Green gram | ... Phaseolus radiatus | ... Mung | ... .. | ... Mug | ... Mag. |
| 10. Horse gram | ... Dolichos biflorus | ... Kulthi | ... Huruli | ... Kuleeth | ... Kuleeth. |
| 11. Lentil | ... Lens esculente | ... Masur | ... Masur Bele | ... Masur | ... Masur. |
| 12. Peas | ... Pisum sativum | ... Bada matter | ... Vona betani | ... Vatana | ... Vatana. |
| 13. Amaranth | ... Amaranthus gangeticus | ... Lal choalsi | ... Yele dentu | ... Math | ... Tanduljo. |
| 14. Cabbage | ... Brassica oleracea capitata | ... Band gobhi | ... Matle Kosu | ... Kobi | ... Kobi. |
| 15. Coriander | ... Coriandrum sativum | ... Dhania | ... Kothambari | ... Kothambir | ... Kothmir. |
| 16. Drumstick | ... Moringa oleifera | ... Saijan | ... Murige | ... Shovuga sheng. | ... Saragwani sheng. |

| | | | | | | | | | | | | |
|-----|----------------|-----|-----|---------------------------------|-----|---------|---------|-------------|-----|----------|-----|---------|
| 17. | Fenugreek | ... | ... | <i>Trigonella foenumgraceum</i> | ... | Methi | ... | ..... | ... | Methi | ... | Methi. |
| 18. | Onion | ... | ... | <i>Allium cepa</i> | ... | Pyas | ... | Erulli | ... | Kanda | ... | Dungli. |
| 19. | Potato | ... | ... | <i>Solanum tuberosum</i> | ... | Alu | ... | Urula Cadda | ... | Batata | ... | Batata. |
| 20. | Brinjal | ... | ... | <i>Solanum melogena</i> | ... | Baingan | ... | Badane | ... | Vange | ... | Ringna. |
| 21. | Cluster beans | ... | ... | <i>Cyamopsis psoralioides</i> | ... | Guarki | phalli. | Gori kayi | ... | Govari | ... | Gavar. |
| 22. | Ladies fingers | ... | ... | <i>Hibiscus esculentus</i> | ... | Bhindi | ... | Bende | ... | Bhendi | ... | Bhenda. |
| 23. | Banana | ... | ... | <i>Musa sapientum</i> | ... | Kela | ... | Bele | ... | Kele | ... | Kela. |
| 24. | Lime | ... | ... | <i>Citrus medica var. acida</i> | ... | Neebu | ... | Nimba | ... | Limbu | ... | Limbu. |
| 25. | Melon | ... | ... | <i>Citrullus vulgaris</i> | ... | Tarbut | ... | Kallangadi | ... | Kalingud | ... | Tarbut. |

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