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# WEIGHT AND HEIGHT IN RELATION TO MALNUTRITION

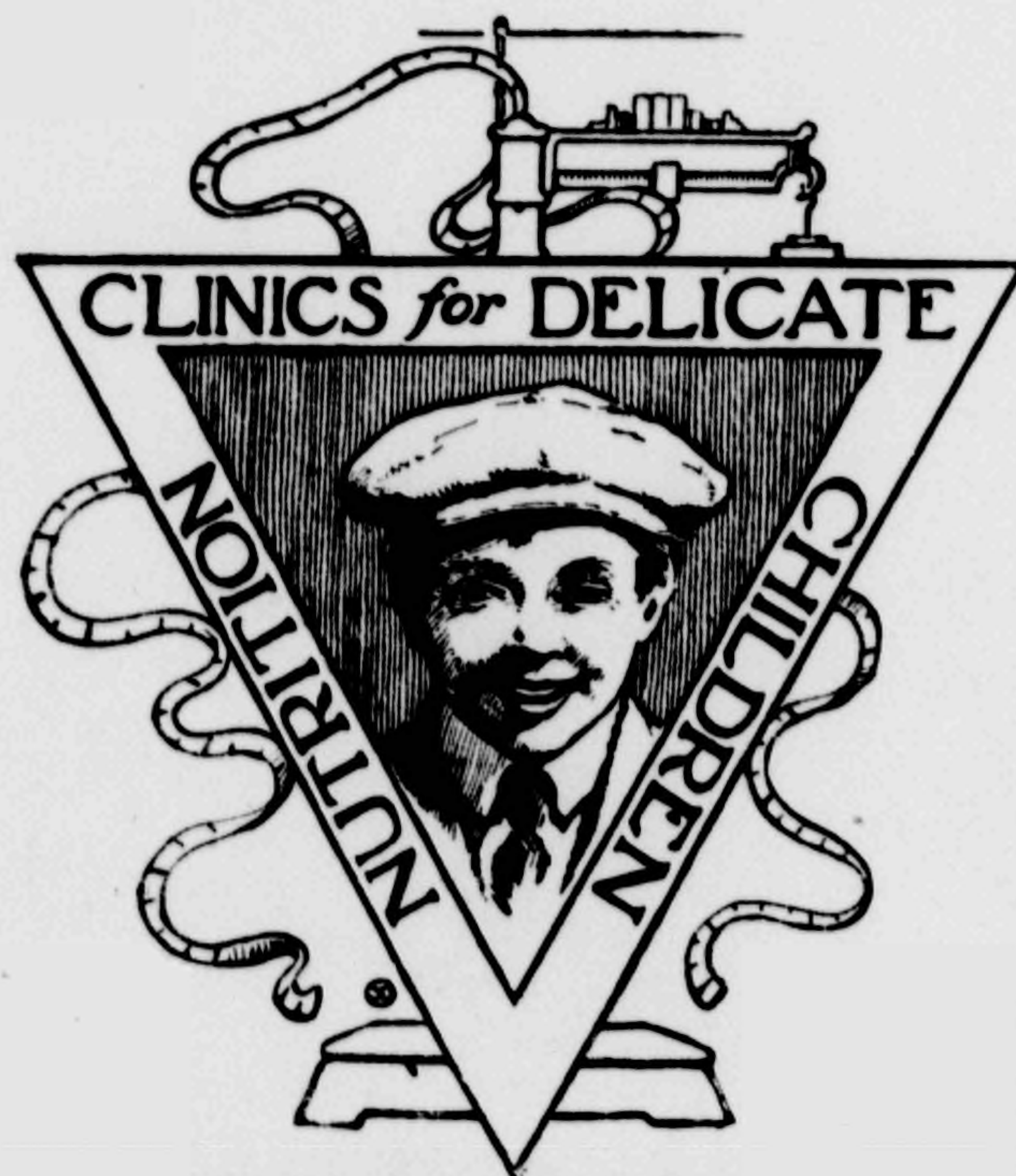
BY

WILLIAM R. P. EMERSON, M.D.

AND

FRANK A. MANNY

BOSTON



PAMPHLET NO. 26

44 DWIGHT STREET, BOSTON

## NUTRITION CLINICS FOR DELICATE CHILDREN

44 DWIGHT STREET, BOSTON



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- 26 WEIGHT AND HEIGHT IN RELATION TO MALNUTRITION, by Wm. R. P. Emerson, M.D., and Frank A. Manny.

\* In preparation.

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## WEIGHT AND HEIGHT IN RELATION TO MALNUTRITION

BY WILLIAM R. P. EMERSON, M.D., AND FRANK A. MANNY.\*

Malnutrition is a clinical entity with characteristic history, definite symptoms and pathological physical signs. The malnourished child is a sick child, and should be so classed. With this clinical picture in mind we have a check on the various weight tables in common use. The mere fact that a child is underweight according to a certain table does not necessarily mean that he is malnourished or even undernourished. The relationship between the individual child's weight and any table of average weights is evidence, but not conclusive evidence, of his physical condition. If the tables are based on proper data they should be not only a means of diagnosing malnutrition, but an aid in measuring its degree.

*Proposed tests.* In dealing, then, with any condition requiring correction in the individual child it is important to know, not only the actual facts of present status, but also the standard which ought to be met. In matters of growth various tests for its measurement have been proposed. Many of these are suggestive, and the field is well deserving of further investigation. The subject has been presented in another article<sup>1</sup> in which it is shown that none of these studies have as yet given much direct help except those concerned with development in terms of weight and height.

*Weight and age.* The basis most frequently used in discussion hitherto has been weight in relation to age. But in the clinic we were early impressed with the practical difficulties of a program which called for great effort on the part of the child to come up to the average weight for his age. The standard set was in many instances so far beyond his present achievement as to appear unattainable. He therefore became discouraged and made no progress at all. To attempt the impossible is not a reasonable means of reaching any goal but failure.

*Height and age.* The basis of height for age is even more confusing because many of the children most in need of care are above the average scale of height for their years.

*Weight and height.* One general physiological principle, how-

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<sup>1</sup>F. A. Manny, Indexes of Nutrition and Growth. (See References.)

## EMERSON-MANNY: *Weight and Height Tables*

ever, seems to be applicable to all cases; that is, however tall or short a child may be, he requires sufficient body weight to sustain that height. In the many thousands of cases that have come under our observation we have never found an instance in which this basis has proved to be impracticable.

*The malnourished.* With this as a starting point the next step was to find what range of variation in the relation between weight and height was compatible with conditions of reasonably good health and growth. Ten per cent. underweight was taken as a working hypothesis, but it was soon evident that many children needing care did not come within this rule. After considering all the clinical evidence, we have found that an habitual 7 per cent. underweight for height is the most satisfactory dividing line.

This marks off the lower boundary of the safety zone. It does not indicate an ideal weight for height because children are found to be better off if they run 10 per cent. higher than this minimum.

*The obese.* A consideration of the upper boundary was afforded by the cases of children so much overweight that they showed impairment in activity and disposition, as well as a general lowering of their health, convenience and comfort. A study of our cases indicates that 20 per cent. overweight serves to distinguish the children who may be called obese.

*The normal zone—stunted variants.* This zone lying between 7 per cent. underweight and 20 per cent. overweight, separates the fairly normal group from those who should be under treatment at one extreme for malnutrition, and at the other for obesity. There are, however, a considerable number of children still left in the central zone who are definitely stunted; that is, not only underweight but also underheight. With proper health conditions these children soon prove that they have capacity for growth in both weight and height not heretofore realized. In this group are included those who are constitutionally affected by such conditions as syphilis, deficient thyroid, the effect of drugs such as caffeine and nicotine, and those recovering from such long continued illnesses as tuberculosis.

*Individual diagnosis.* We make it a rule to use the weight-height ratio for the purpose of selecting that large group of malnourished children most urgently in need of attention, and then

## EMERSON-MANNY: *Weight and Height Tables*

depend upon individual diagnosis to identify other cases not reached by the general rule. Any child who is clearly below the height and weight measurements usual at his age receives special consideration even though his ratio may be normal. In such a case an actual condition of good health and proper growth factors must be proved before it is fair to assume that the child is developing as well as it is possible for him to do.

*Extent of malnutrition.* The tests which we have applied to large numbers of children indicate that from 20 to 40 per cent. of the children of school and pre-school age in this country are habitually underweight for their height, and present both physical and mental signs of malnutrition. The results accomplished in nutrition classes show that under proper treatment and care practically all of these children can be made well in their own homes. The expression "made well" is used advisedly, for children who are habitually underweight for their height, are really sick, and present, practically without exception, in their history and on physical examination other distinctive signs of impaired nutrition which indicate that they are not only undernourished but malnourished.

*The clinical picture.* In the history we find the malnutrition coming on after a certain illness, or as a result of overfatigue, or of faulty food or health habits. At the same time the child becomes irritable, tires easily, lacks physical and mental control, and exhibits other indications of nervous disturbance.

Among the physical signs, besides the weight to height ratio, are lines under the eyes, anxious expression, pallor, mouth-breathing and other signs of nasopharyngeal obstruction; the anterior cervical glands are apt to be enlarged; the muscles flabby (tested by feeling the upper arm); there may be ptosis, fatigue posture, round shoulders, lateral curvature, flat chest, rigid spine, prominent abdomen and pronated or flat feet. By fatigue posture we refer to an appearance similar to the senile stoop due to weak muscles.

As the child approaches the normal there is clinical evidence of a transformation that is both physical and mental. There is a return of color and a glow of health that is unmistakable. Practically every parent states that the patient has "become a different child." Normal reactions appear, restlessness and irritability diminish, and the child ceases to be "finicky" and

## EMERSON-MANNY: *Weight and Height Tables*

"nervous." These are the same changes we look for after a long rest or a vacation.

*Evidence of stunted growth.* When conditions have been corrected for a malnourished child, nature apparently gives a strong initial impetus to his development. This is evidenced by the first rapid advance in growth, the rate of which is gradually reduced as he approaches normal condition. After the increase in weight has well started there is an increase in height also. This is more rapid than the rate of growth in the normal child—a sudden making up of the retarded growth following the removal of the causes which first made the child stunted. This is illustrated in Chart I.

When a child is becoming malnourished, the loss of weight is very evident, but frequently the gain in height continues. The place of these two factors in practical work is suggested by Robertson in the following statement: "The variability of stature is much less than the variability of weight, from which we may infer that as a criterion of abnormality the measure of stature is more reliable than that of weight, while as a sensitive indicator of the effects of environmental, physiological or dietetic fluctuations, provided statistical methods of investigation are employed, the measure of weight is to be preferred to stature."

*Vitiated tables.* All tables of weight and height now in use are vitiated by the fact that they contain the measurements, not only of those who have accomplished normal growth, but also this 20 to 40 per cent. group who are habitually underweight for their height, as well as an undetermined number less underweight, but presenting other definite signs of malnutrition. It may be argued that the subnormal children are balanced in the tables by those who are overweight, but experience shows that the comparatively small number of cases sufficiently overweight to be considered abnormal are more than overbalanced by the borderline cases, without taking into account any of those who are clearly underweight for their height.

We need a record which has ruled out as far as possible, by physical examination, the groups described above. The remainder would furnish us data for physiological norms showing the range of normal children within a zone of healthy growth.

The foregoing paragraphs present the clinical evidence lying back of the tables which are here published.



EMERSON-MANNY: *Weight and Height Tables*

Chart I

Age 9 yrs. 7 mos.  
Height 49 in.  
Weight 46 lbs.

Underweight 9.4 lb. Per Cent 17  
Average Height for Age 51 in.  
Average Weight for Height 55.4 lbs.

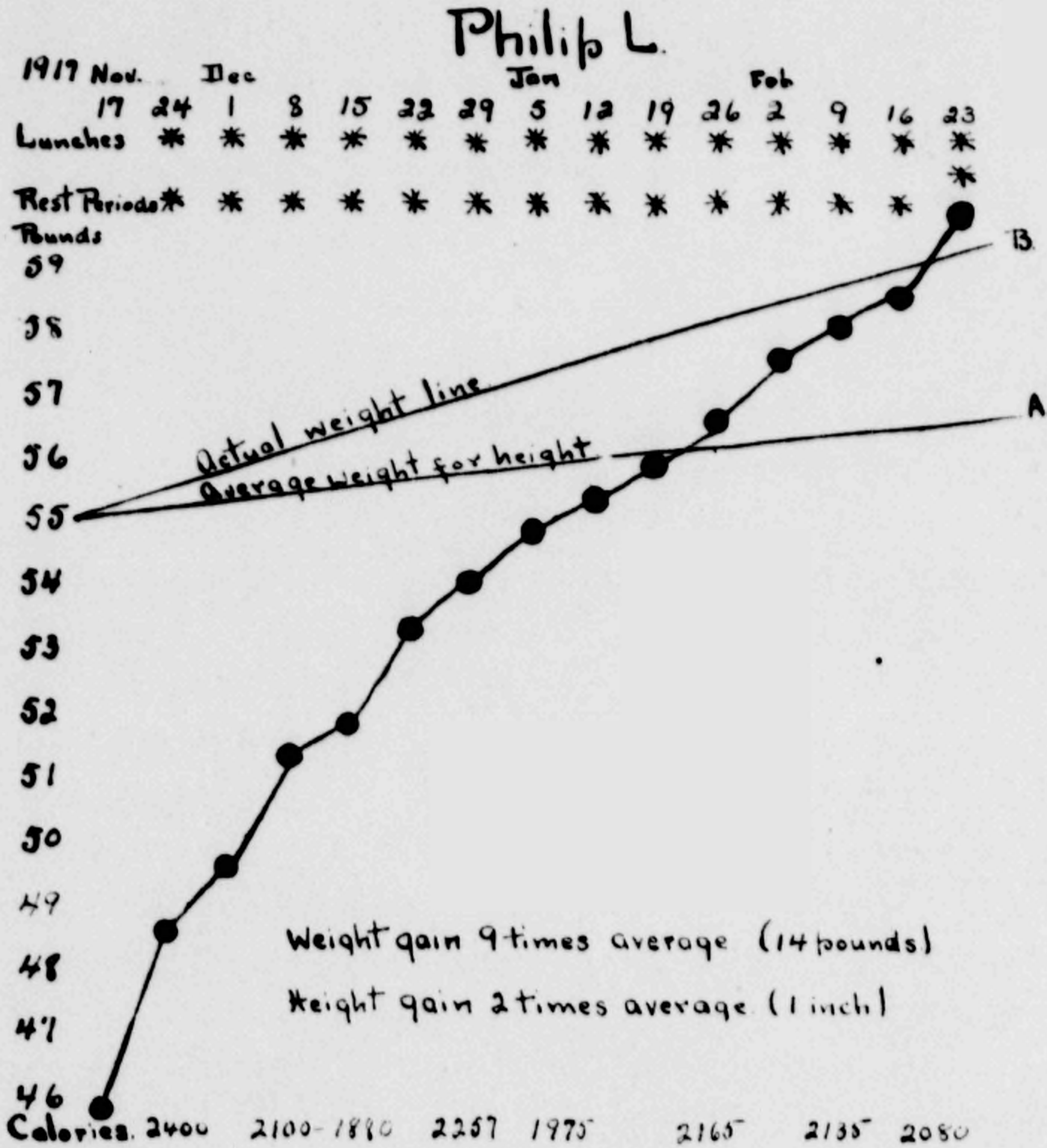


CHART I shows the record of a boy of 9 years and 7 months, who was 17 per cent. underweight for his height. During 14 weeks he gained 14 pounds in weight and 1 inch in height. Line A indicates his expected gain line as worked out when he first came to us. The fact, however, that during the time in which he was gaining rapidly in weight he also made twice as much gain in height as would be expected at his age is good evidence that he was below normal in height, which has to do with skeletal growth, as well as in weight for height. This would indicate that he was stunted and had capacity for growth beyond what he had attained. Further evidence of this statement appears clinically, for the boy was not up to normal when he had gained the 9.4 pounds which he lacked at the start. His gain in height required a new expected weight line (see line B on the chart) and it was only on reaching this new ratio that he became clinically well.

The constant occurrence of this change seems strong evidence that all children habitually 7 per cent. underweight for their height are retarded about a year in growth. The 7 per cent. by itself does not amount to this but the additional weight necessitated by the extra gain in height makes up the difference.

## EMERSON-MANNY: *Weight and Height Tables*

*Sources of our tables.* For the early years we have used for some time Holt's revised figures which he kindly furnished us before publication. These are now available in the latest edition of "The Diseases of Infancy and Childhood." The figures for children of school age we have taken for the most part from the basal studies of Boas and Burk which incorporate the work of Bowditch, Peckham, Porter and others, aggregating in all some 90,000 measurements. The results of their studies have appeared in two forms. One of these takes the mean of all measurements for each year of age at the half year<sup>1</sup>, while the other, counts all those of a given year as if they were made at the beginning of the year<sup>2</sup>. This places the weights and heights of the latter version 6 months in advance of those of the former.

*Tables set forward.* The general correctness of the first form of the table is evident in any study which includes all the children examined, without excluding the 20 to 40 per cent. who are clearly below par. This is illustrated in Charts II and III. The wide use made of the latter form of the table, in which the figures are set forward half a year, has been due, no doubt, to the fact that it represents better than the other the measurements of fairly normal children.

On this account we have deliberately set the figures forward half a year in our tables because clinical work conducted both in the hospital and with so-called well children in school has shown that the curves on that basis represent better working standards than do any others now available. It will be observed that this form of the Boas-Burk figures articulates well with those of Holt's table for younger children, while the other form leaves a break in the line.

Such studies as those of Baldwin and Robertson, made on smaller groups of selected children, indicate results which run much higher than even our "set forward" figures. (See Charts IV and V). We have tested our tables by the various records referred to in Baldwin's bibliography and also by later investigations such as those made by the Metropolitan Life Insurance Company in their study of candidates for working papers, and that of Greenwood which includes 350,000 measurements of English school children.

<sup>1</sup> B. T. Baldwin, *Physical Growth and School Progress*, p. 150.

<sup>2</sup> J. L. Morse, *Case Histories in Pediatrics*, p. 13.

EMERSON-MANNY: *Weight and Height Tables*

*Make Zinc Etching  
Table 000*

**NUTRITION CLINICS FOR DELICATE CHILDREN**

**TABLE OF AVERAGE WEIGHTS OF CHILDREN AT VARIOUS HEIGHTS**  
Also Showing Weights 7% and 10% Underweight for Height

Height Inches	BOYS			GIRLS			Height Inches
	Average Weight for Height Pounds	7% Under- weight Pounds	10% Under- weight Pounds	Average Weight for Height Pounds	7% Under- weight Pounds	10% Under- weight Pounds	
*21	8.2	7.6	7.4	7.9	7.3	7.1	21*
*22	9.7	9.0	8.7	9.4	8.7	8.5	22*
*23	11.1	10.3	10.0	11.0	10.2	9.9	23*
*24	12.5	11.6	11.3	12.5	11.6	11.3	24*
*25	13.9	12.9	12.5	14.0	13.0	12.6	25*
*26	15.3	14.2	13.8	15.5	14.4	14.0	26*
*27	16.9	15.7	15.2	17.2	16.0	15.5	27*
*28	18.5	16.2	16.7	18.8	17.5	16.9	28*
*29	20.2	18.8	18.2	20.5	19.1	18.5	29*
*30	21.7	20.2	19.6	22.0	20.5	19.8	30*
*31	23.2	21.6	20.9	23.4	21.8	21.1	31*
*32	24.5	22.8	22.1	24.8	23.1	22.3	32*
*33	25.9	24.1	23.3	26.0	24.2	23.4	33*
*34	27.3	25.4	24.6	27.3	25.4	24.6	34*
*35	28.7	26.7	25.8	28.6	26.6	25.7	35*
*36	30.0	27.9	27.0	30.0	27.9	27.0	36*
*37	31.6	29.4	28.4	31.5	29.3	28.4	37*
*38	33.2	30.9	29.9	32.7	30.4	29.4	38*
39	36.3	33.8	32.7	35.7	33.2	32.1	39
40	38.1	35.4	34.3	37.4	34.8	33.7	40
41	39.8	37.0	35.8	39.2	36.5	35.3	41
42	41.7	38.8	37.5	41.2	38.3	37.1	42
43	43.5	40.5	39.2	43.1	40.1	38.8	43
44	45.4	42.2	40.9	44.8	41.7	40.3	44
45	47.1	43.8	42.4	46.3	43.1	41.7	45
46	49.5	46.0	44.6	48.5	45.1	43.7	46
47	51.4	47.8	46.3	50.9	47.3	45.8	47
48	53.0	49.3	47.7	53.3	49.6	48.0	48
49	55.4	51.5	49.9	55.8	51.9	50.2	49
50	59.6	55.4	53.6	58.3	54.2	52.5	50
51	62.5	58.1	56.3	61.1	56.8	55.0	51
52	65.8	61.1	59.2	63.8	59.3	57.4	52
53	68.9	64.1	62.0	66.8	62.1	60.1	53
54	72.0	67.0	64.8	70.3	65.4	63.3	54
55	75.4	70.1	67.9	74.5	69.3	67.1	55
56	79.2	73.7	71.3	78.4	72.9	70.6	56
57	82.8	77.0	74.5	82.5	76.7	74.3	57
58	87.0	80.9	78.3	86.6	80.5	77.9	58
59	91.1	84.7	82.0	91.1	84.7	82.0	59
60	95.2	88.5	85.7	96.7	89.9	87.0	60
61	99.3	92.3	89.4	102.5	95.3	92.2	61
62	103.8	96.5	93.4	110.4	102.7	99.4	62
63	108.0	100.4	97.2	118.0	109.7	106.2	63
64	114.7	106.7	103.2	123.0	114.4	110.7	64
65	121.8	113.3	109.6	130.0	120.9	117.0	65
66	127.8	118.9	115.0	137.0	127.4	123.3	66
67	132.6	123.3	119.3	143.0	133.0	128.7	67
68	138.9	129.2	125.0	146.9	136.6	132.5	68

\*Without Clothing.

*Emerson - Manny*



EMERSON-MANNY: *Weight and Height Tables*

TABLE SHOWING INCREASES IN WEIGHT AT VARIOUS AGES BY YEARS  
QUARTERS, AND WEEKS

BOYS						
Age	Year—52 Weeks		Quarter—13 Weeks		Week	
	Pounds	Ounces	Pounds	Ounces	Pounds	Ounces
Birth to 1 year	13.45	215.2	3.3625	53.8	.259	4.14
1 to 2 years	6.3	100.8	1.575	25.2	.121	1.94
2 to 3 years	5.2	83.2	1.3	20.8	.100	1.60
3 to 4 years	4.3	68.8	1.075	17.2	.083	1.32
4 to 5 years	4.0	64.0	1.0	16.0	.077	1.23
5 to 6 years	4.0	64.0	1.0	16.0	.077	1.23
6 to 7 years	4.3	68.8	1.075	17.2	.083	1.32
7 to 8 years	5.0	80.0	1.25	20.0	.096	1.54
8 to 9 years	5.1	81.6	1.275	20.4	.098	1.57
9 to 10 years	5.8	92.8	1.45	23.2	.112	1.79
10 to 11 years	5.3	84.8	1.325	21.2	.102	1.63
11 to 12 years	6.2	99.2	1.55	24.8	.119	1.91
12 to 13 years	7.9	126.4	1.975	31.6	.152	2.43
13 to 14 years	10.4	166.4	2.6	41.6	.200	3.20
14 to 15 years	12.2	195.2	3.05	48.8	.235	3.75
15 to 16 years	13.6	217.6	3.40	54.4	.262	4.18

GIRLS						
Age	Year—52 Weeks		Quarter—13 Weeks		Week	
	Pounds	Ounces	Pounds	Ounces	Pounds	Ounces
Birth to 1 year	13.34	213.44	3.335	53.36	.257	4.11
1 to 2 years	6.0	96.0	1.50	24.0	.115	1.85
2 to 3 years	5.0	80.0	1.25	20.0	.096	1.54
3 to 4 years	3.8	60.8	.95	15.2	.073	1.17
4 to 5 years	3.6	57.6	.9	14.4	.069	1.11
5 to 6 years	3.6	57.6	.9	14.4	.069	1.11
6 to 7 years	4.3	68.8	1.075	17.2	.083	1.32
7 to 8 years	4.8	76.8	1.2	19.2	.092	1.47
8 to 9 years	4.9	78.4	1.225	19.6	.094	1.51
9 to 10 years	5.5	88.0	1.375	22.0	.106	1.69
10 to 11 years	6.6	105.6	1.65	26.4	.127	2.03
11 to 12 years	9.2	147.2	2.3	36.8	.177	2.83
12 to 13 years	10.0	160.0	2.5	40.0	.192	3.08
13 to 14 years	9.6	153.6	2.4	38.4	.185	2.95
14 to 15 years	8.4	134.4	2.1	33.6	.175	2.59
15 to 16 years	5.6	89.6	1.4	22.4	.108	1.72

The tables on pages 1 and 4 are based upon those on pages 2 and 3. The material of the latter for the first four years is taken from Holt's Diseases of Infancy and Childhood (1919)—that for the succeeding years is derived principally from the work of Boas, Burk, Bowditch and Smedley. The weights and heights in Holt's table are without clothing, while those of the later years are with indoor clothing but without shoes.

It will be noted that the figures for the later years differ from the Boas-Burk tables by six months. Our reason for setting the figures forward half a year is that in their original form they represent averages which include the very large number of children whom our clinical experience and studies of entire school groups find to be seriously malnourished. The tables in their present form run lower than those made in studies concerned mainly with normal children. As they are here printed they afford the best working standard for use until such a time as sufficient data are secured from weighing and measuring a large number of children who are normal.

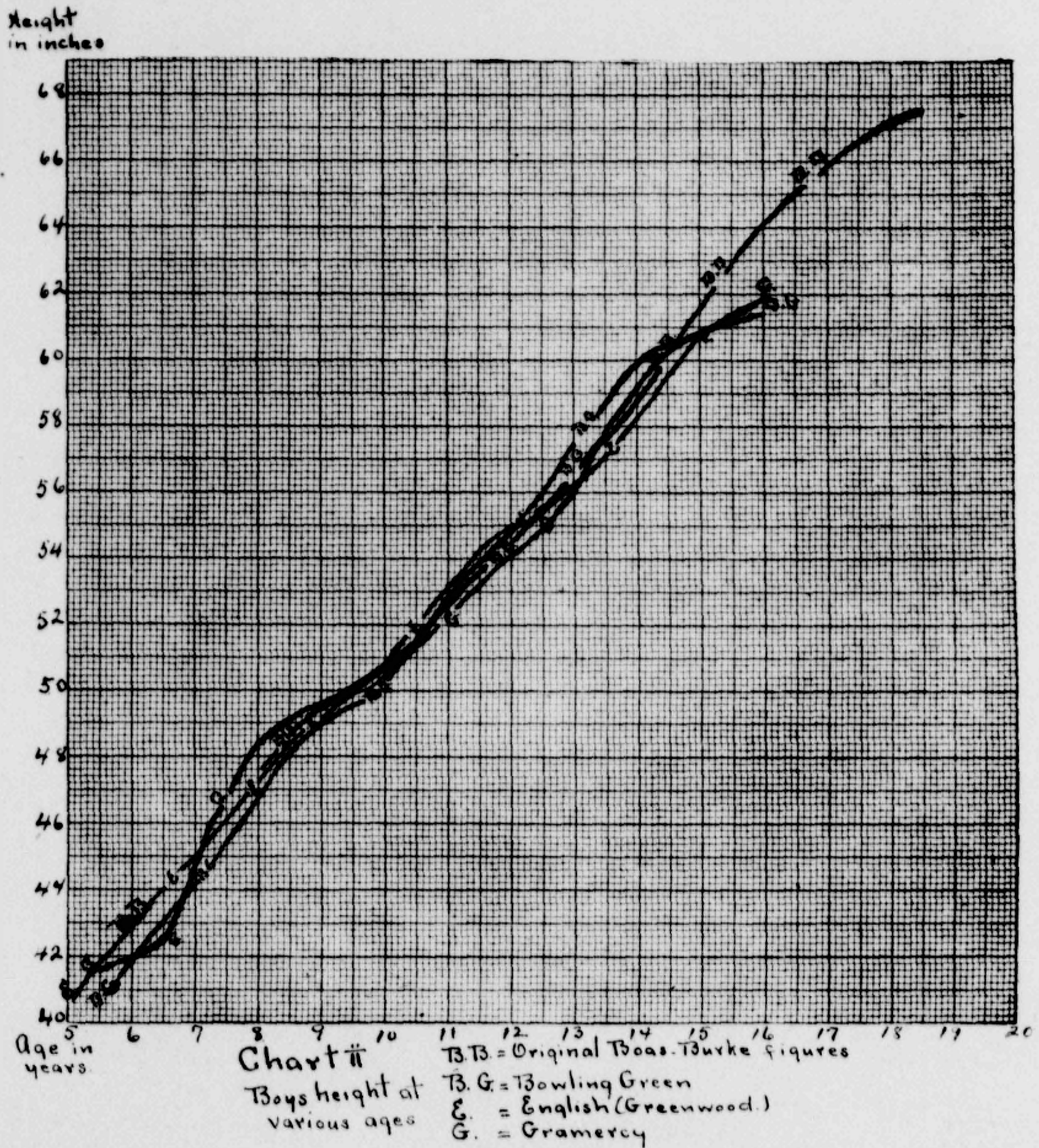
NUTRITION CLINICS FOR DELICATE CHILDREN

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EMERSON-MANNY: *Weight and Height Tables*

*The zone standard.* Wood has done valuable service in emphasizing the use of the zone system as opposed to any single line as a standard of reference. In the latest revision of his figures his results agree very nearly with the standard which we have adopted, although, as will be seen in Chart VI, he does not allow as wide a range of variation.

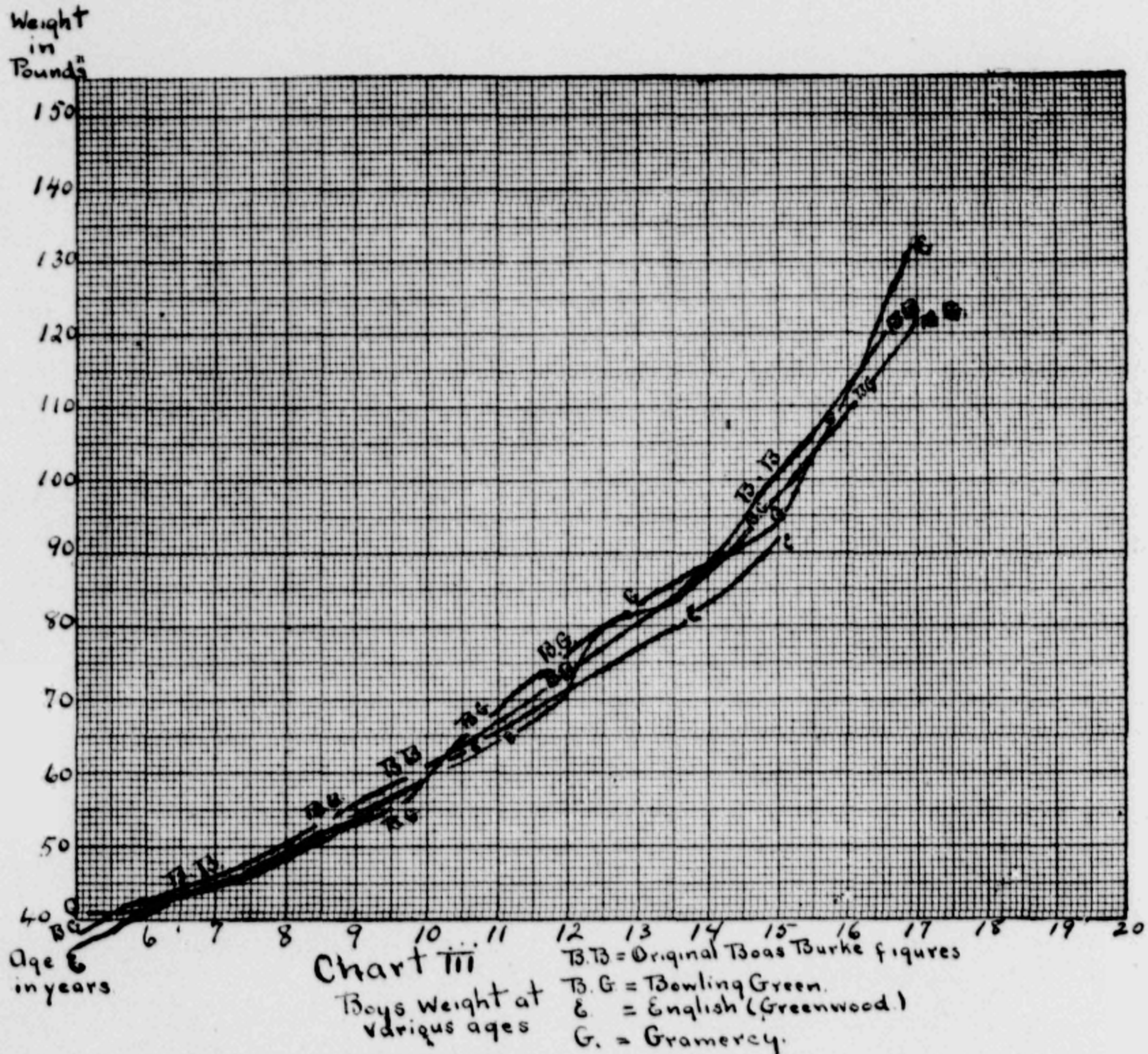


When we turn to age variations (see Chart VII) his range is less consistent, and we know of no clinical data which justify such modifications. For instance, according to Wood's latest table a girl of 7, with a height of 47 inches, should weigh 50 pounds, while a girl of 9, of the same height, should weigh 53 pounds. In his tables published in 1910 this was reversed, and the expected weight for the girl of 7 at the height given was

EMERSON-MANNY: *Weight and Height Tables*

50 pounds, while the girl of 8 and 9, having the same height, had an expected weight of only 49 pounds. As Cannon states, "There is no physiological law which shows that a child should grow in height out of proportion to his weight. Furthermore, the average child has an average relation of height and weight."

Within normal variations, therefore, we repeat that a given

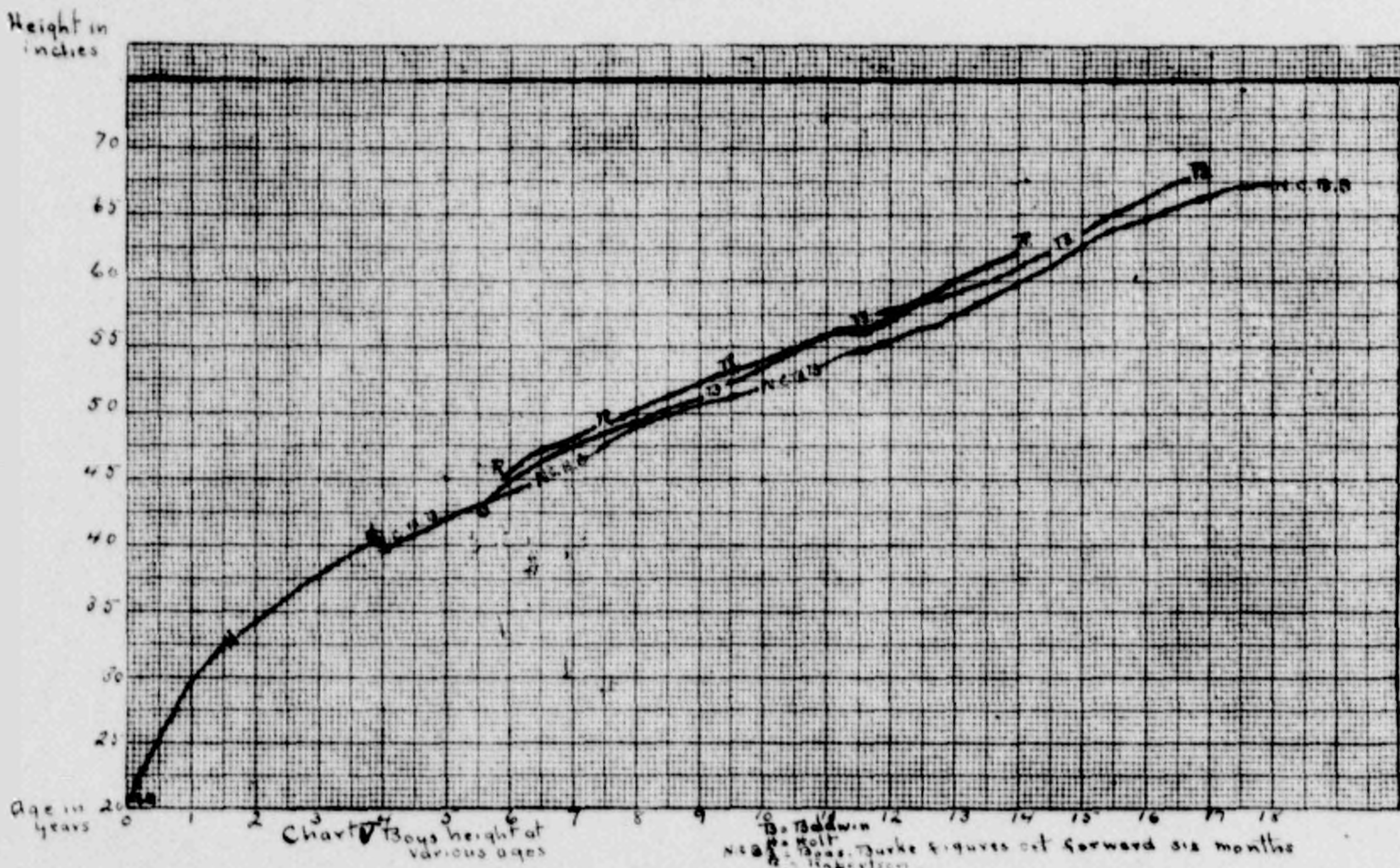
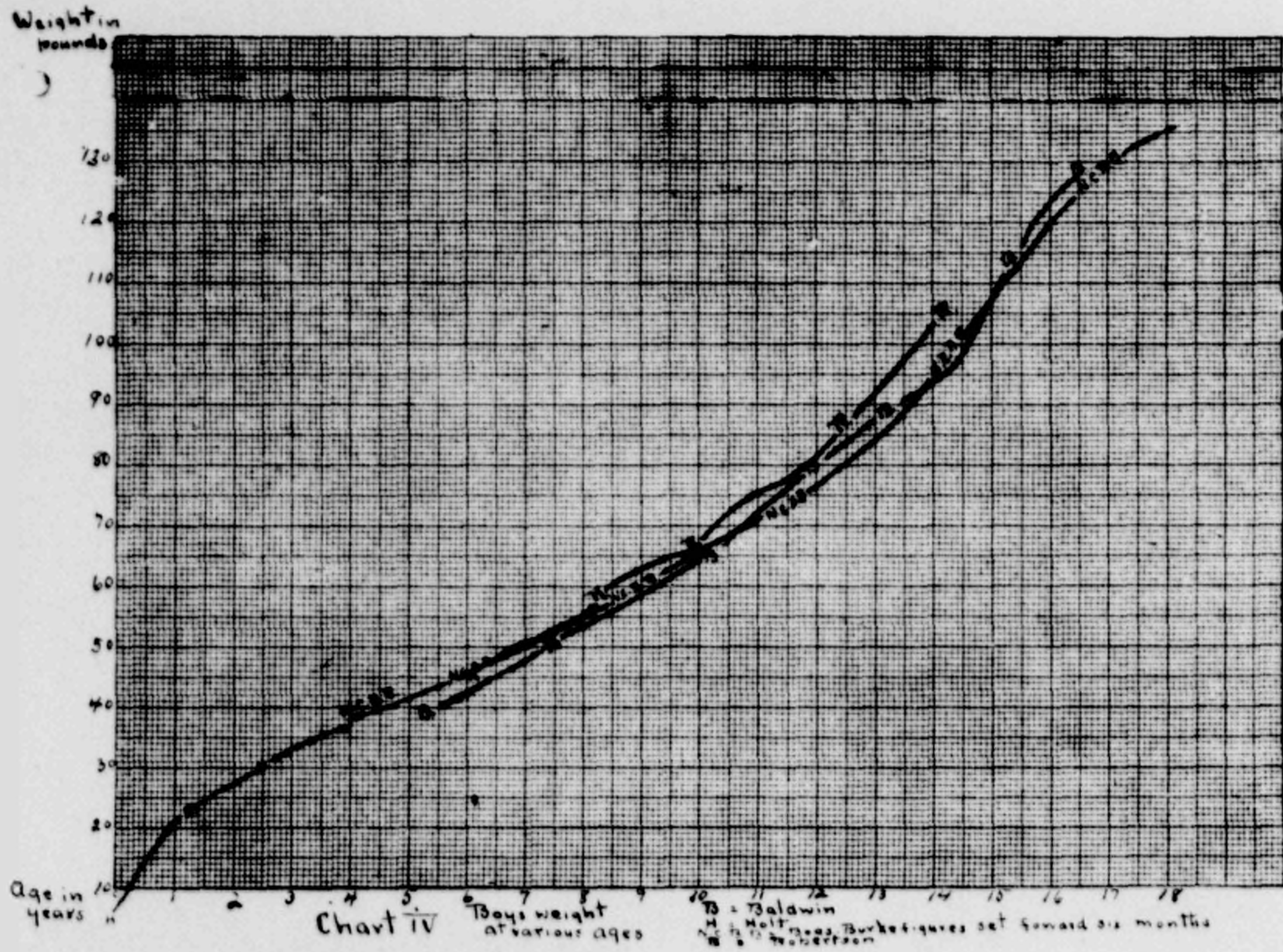


CHARTS II and III show how closely the measurements of height and weight of the pupils in four New York City schools, taken in 1917, agree with the averages in the original Boas-Burke tables. The pupils were in two groups—the Gramercy and Bowling Green districts—and numbered in all about 2500, of whom one-fourth to one-third were malnourished. Similar results are shown by including measurements of 350,000 English school children compiled by Greenwood in 1914.

height requires a certain body weight to sustain it at any age. The increase in weight which a child may be expected to make is, of course, modified by his age no matter what his nutritional condition because of the factor of adolescence. The relation between retardation of adolescence and malnutrition is a subject needing further investigation.

Retan has recently worked out a chart showing the zones of

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CHARTS IV and V afford a comparison of the tables used in our nutrition clinics with the results obtained by Baldwin and Robertson from selected children measured without clothing. The former used some 30,000 measurements, and the latter 900. Note that even with the advance of half a year the line on which we base our standard runs *with clothing* below the lines of the more normal children measured *without clothing*.



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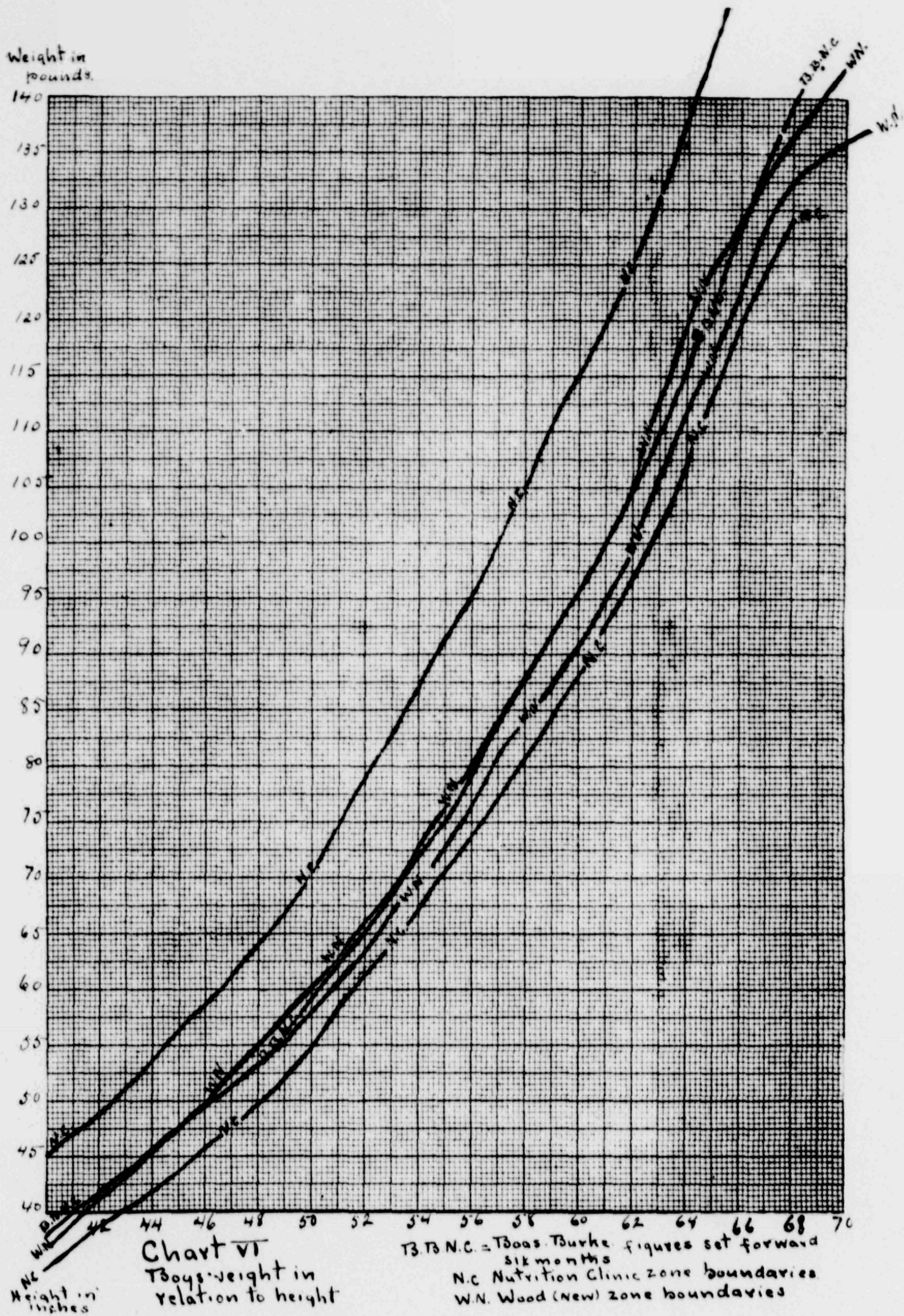
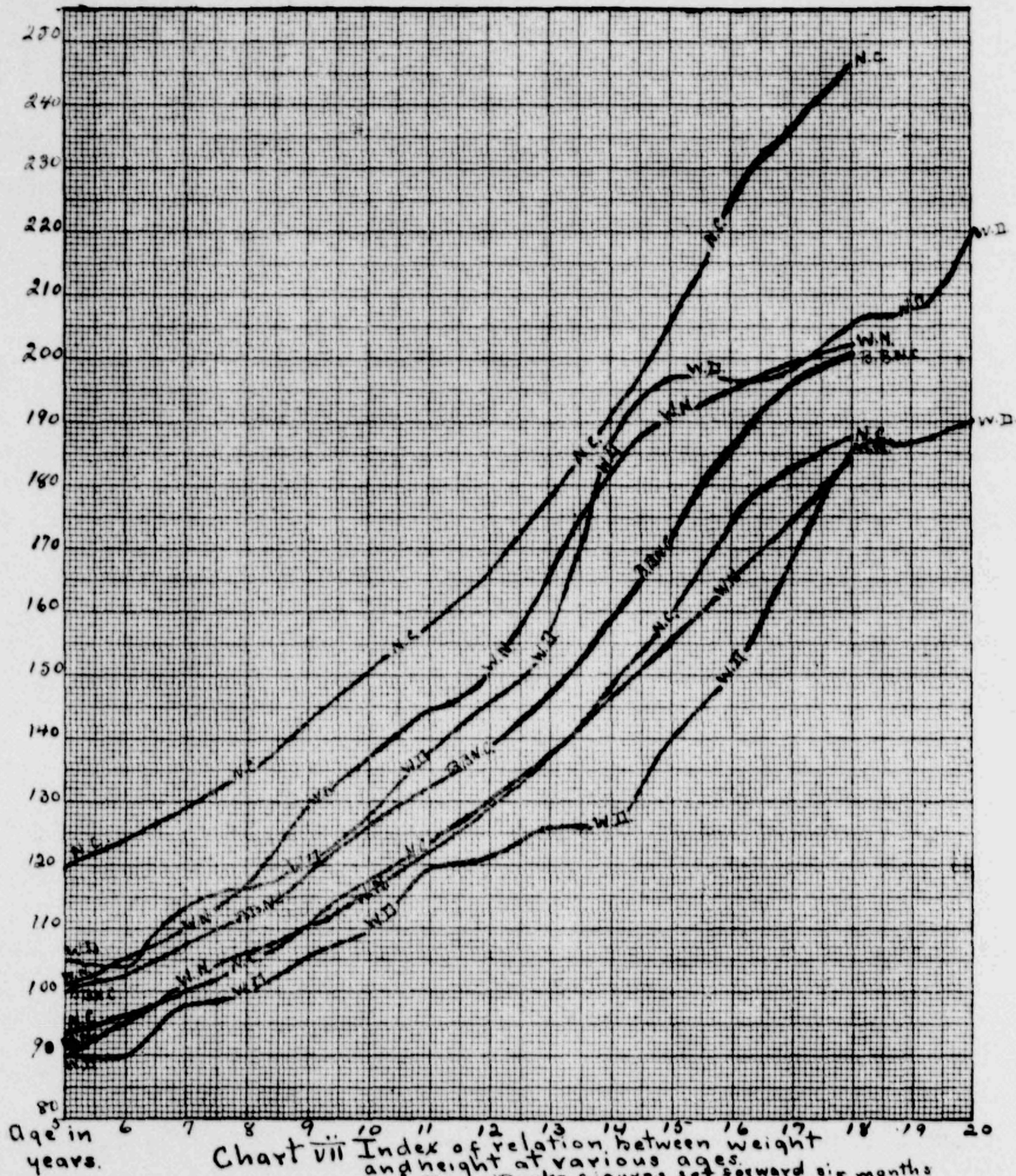


CHART VI shows the relationship between the zone boundaries which we use—7 per cent. underweight and 20 per cent. overweight for height—and those made by Wood for the use of the Child Health Organization. Note how closely Wood's lines follow the "set forward" Boas-Burke figures which we use as a basis. Wood's zone of health is much narrower than our clinical evidence justifies.

## EMERSON-MANNY: *Weight and Height Tables*

Index  
Weight in pounds divided  
by height in inches



In Chart VI the comparison was kept to the relationship between weight and height, but in CHART VII the factor of age is also used. The weight and height factors are combined by using an index secured by dividing the weight in pounds by the height in inches. In addition to the figures prepared recently by Wood we have also included those which he published in 1910. Note that both his lower and upper zone boundaries are, on the whole, much higher in the later edition.

EMERSON-MANNY: *Weight and Height Tables*

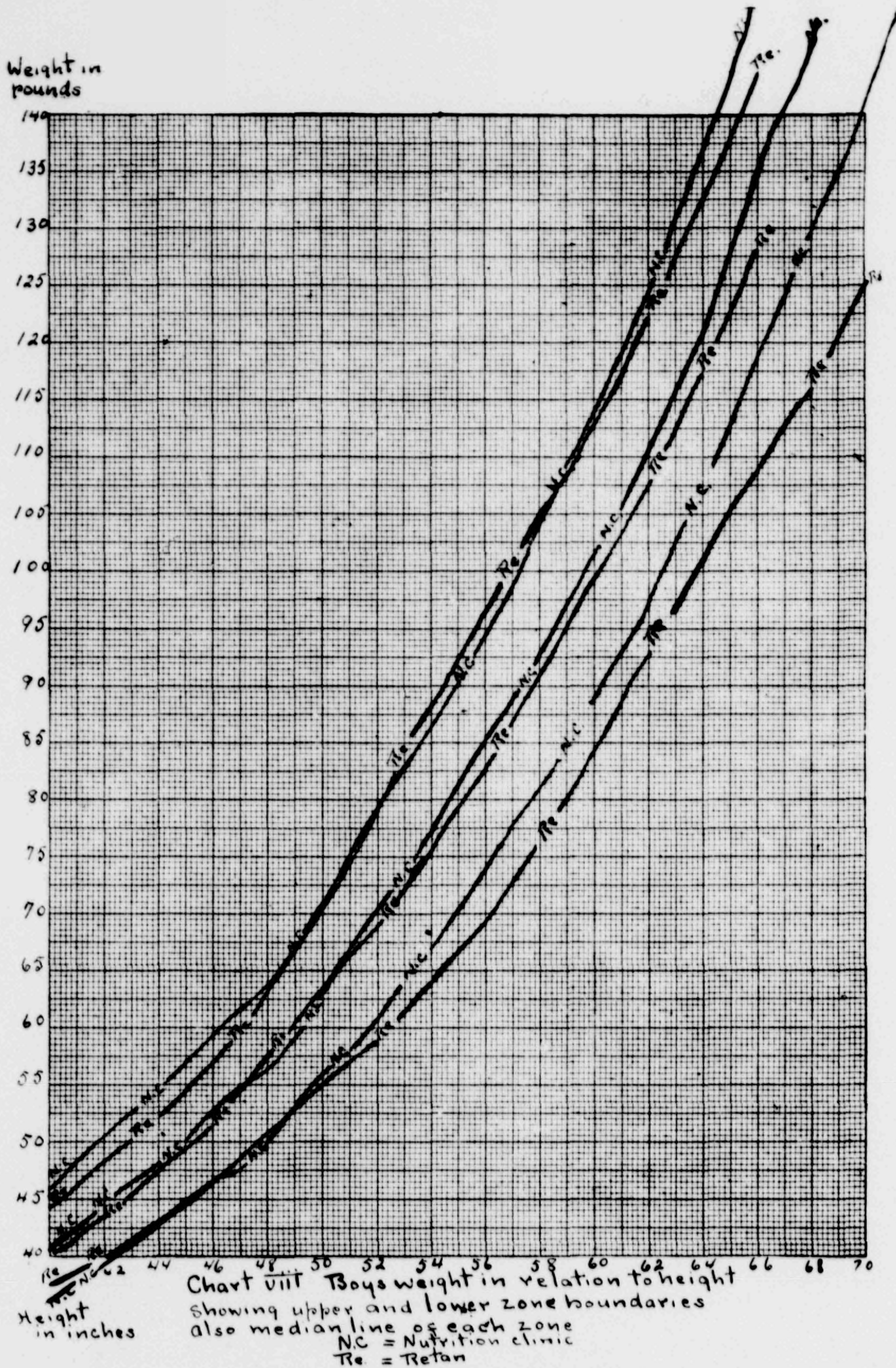


CHART VIII shows the zone boundaries determined experimentally by Retan. In plotting all children examined he made use of our general boundaries and then laid out his zones according to the actual location on the chart of obese and malnourished cases. The general agreement of the two sets of boundaries is here well illustrated.

## EMERSON-MANNY: *Weight and Height Tables*

nutritional condition. Starting with our tables, he has classified in zones all the children examined. The result reveals the malnourished children collected in the range of unsatisfactory relation between weight and height. Chart VIII shows how closely his evidence agrees with the boundaries we have worked out.

*Sex and race variation.* Sex variation is an interesting study in itself, but in the practical consideration of children up to the age of adolescence there is no reason for discussing the subject in this article. Therefore space has not been taken to publish parallel charts for the two sexes. To make comparison easier all the charts used are those showing the heights and weights of boys.

An objection frequently raised is that no single range of averages can serve for the various nationalities in an American city. We have tested our tables on the mixed population of several schools, and find that our range makes sufficient allowance in dealing with even the Italians and other types considered farthest below the average.

*Seasonal growth.* A section of this subject deserving special study is the matter of seasonal growth. It is commonly held that during certain parts of the year growth in weight leads, while growth in height is especially characteristic of other seasons. A summary of the literature of the subject is found in Hall's "Adolescence." Reference is made in the latest edition of Holt's "Diseases of Infancy and Childhood" to a study of 700 observations made on boys ranging in age from 9 to 16 years in a New York private school. This showed the period from May to November to have a decided advantage over the other 6 months in both weight and height increases. This result is ascribed to the greater freedom from illness and the larger opportunities for outdoor life during the open months. Added interest is given to this statement in the light of our experience which shows nasopharyngeal obstruction to be the most seriously disturbing physical factor with which we have to deal.

### SUMMARY.

- (1) Malnutrition is a definite clinical entity with characteristic history, definite symptoms and pathological physical signs.
- (2) Clinical evidence shows that the physical sign which may

EMERSON-MANNY: *Weight and Height Tables*

best serve to identify this group of malnourished children is the relationship existing between weight and height.

(3) The age factor is of secondary importance and is mainly serviceable in selecting cases stunted by constitutional disabilities such as syphilis, tuberculosis, deficient thyroid, the effect of certain drugs, convalescence from long illnesses, etc.

(4) The tables derived from the studies of Boas and Burk represent the most extensive records of weight and height measurements made. Recent studies show that they are essentially true averages of unselected groups of American children.

(5) The Boas-Burk and other tables in general use are vitiated by the fact that they include a large number of malnourished children whose measurements lower the averages of weight and height, thus making them of relative value only as standards.

(6) As a working basis it has been found necessary to set forward the Boas-Burk figures half a year, thus offsetting to a considerable extent the depression of averages stated above.

(7) Individual variation in the relationship of weight to height is of sufficient importance to make it necessary to use a zone system rather than any single line as a basis of reference.

(8) After various experiments at determining zone boundaries, clinical evidence is best satisfied by lines lying between 7 per cent. below and 20 per cent. above the "set forward" Boas-Burk figures. Outside of this central zone are found, on the one hand, the malnourished, and, on the other, the obese. Within the zone are still a considerable number of malnourished children requiring individual diagnosis.

(9) The malnourished children selected by this rule of habitual 7 per cent. underweight for height form, almost without variation, 20 to 40 per cent. of any group of children in school and pre-school periods.

(10) When tables have been constructed from a sufficient number of children proved to be normal, the line of average weights and heights will lie somewhere between the "set forward" Boas-Burk figures and those represented by a line drawn

## EMERSON-MANNY: *Weight and Height Tables*

midway between the 7 per cent. underweight and 20 per cent. overweight boundaries of the zone described above. Special studies of somewhat more carefully selected children, for example, those made by Baldwin and Robertson, confirm this statement.

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# Meat and the Well-Balanced Diet

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*Issued by the*

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## *Foreword*

This booklet contains (1) a non-technical discussion of the well-balanced diet and the place of meat in such a diet; (2) a reprint of an article by Dr. Logan Clendening on the place of meat in the diet; and (3) an appendix of extracts from scientific literature bearing on the wholesomeness of meat.



# Meat and the Well-Balanced Diet

A well-balanced diet is one which satisfies all of the food requirements of the body. Through careful experimentation, scientists have found that our foods are made up of a number of important elements known as proteins, fats, carbohydrates, minerals, and vitamins, together with water and some roughage such as is found in green leafy vegetables, whole cereals, and certain fruits. It also has been determined that the human body must have certain minimum amounts of each of these foods or food elements if it is to function in the most efficient manner. A diet which contains each of these elements in the proper proportions is said to be well balanced.

Although it is important that the well-balanced diet be followed in the home, it is by no means necessary for the housewife or the layman to make a detailed study of the subject of nutrition in order to be able to plan properly balanced meals. A few simple rules and good common sense are sufficient.

## *Source of the Elements*

Most of the foods we commonly eat have been classified according to their nutritive qualities. To obtain our protein, we can rely chiefly on meat, fish, eggs, and milk. Meat also is valuable for certain of its minerals, and, in the case of the fatter meats, for its fats. Other animal sources of fats are butter and cream. Fat also is obtained from the following vegetable sources: corn, cottonseed, and cocoanut. Minerals and vitamins are supplied in abundance by green leafy vegetables, fresh fruits, and milk. Vitamins also are found to some extent in meats. For carbohydrates we look principally to the starchy vegetables and to cereal products, such as bread and breakfast foods. Some of the foods just mentioned also furnish some quantities of the other elements, but they are most important for those with which they are identified above.

It can be seen from this list that a well-balanced meal may be made up from as few as three or four single foods. Indeed, many meals which have been planned with little or no thought to proper nutrition can be balanced properly merely by adding one more dish, such as a green leafy vegetable, a glass of milk, or a meat dish.

The well-balanced diet is in no sense a fad. It does not call for the consumption of any unusual or freakish foods. It can be

made up of foods which are in common use, although they are not always used in proper amounts.

It can not be stated that it is absolutely necessary for everyone to follow a varied diet. There is definite evidence that man can live and thrive on a diet consisting of certain single foods. In this day, however, it is not necessary to live on any one food. Variety has its appeal. Most people soon would tire if they ate nothing but one food day after day. The varied diet, whether it is necessary or not, probably is the most satisfactory diet and certainly the safest diet.

In addition to the food elements which have been mentioned there are other factors to be considered in judging foods. Among these factors are palatability and digestibility.

### *Palatability of Food*

Palatability is important because it directly affects the digestion of a food. In general, it may be said that a palatable food is one which is pleasing to the person eating it. Thus, a food may be palatable to one consumer and unpalatable to another. Certain foods, however, are palatable for practically everyone. The most palatable foods digest better because the anticipation of eating them and the pleasant sensation enjoyed while they are being eaten calls forth a more potent supply of the gastric juices which are so important in digestion of food. In the case of most normal people, a ripe, red apple or a delicious broiled steak, or an unusually appetizing dessert digest well because they are so palatable. Meat is universally recognized, according to Forbes, a well-known authority on nutrition, as one of the most palatable of all foods. (See Page 21.) Hawk also commends meat's palatability as an aid to digestion. (See Page 21.) Drs. Rehfuss and Marcil, in recent experiments, also found that meat stimulates the gastric juices and thus aids digestion. (See Page 21.)

### *Digestibility*

There are two general measures of digestibility; first, the thoroughness with which a food digests; second, the speed with which it digests. In the case of the normal, healthy person, the time required for digestion may be of little concern, because the foods commonly eaten all digest as quickly as necessary. Thoroughness of digestion is important because it is a measure of the value which the body derives from the food. Both lean and fat meat are easily and thoroughly digested by the human body. As pointed out

by Dr. Sherman (See Page 22), experiments have demonstrated that the body digests about 97 per cent. of the lean meat and 96 per cent. of the fat. Meat leaves the stomach less quickly than many other foods and thus delays the return of hunger. At one time it was thought by some that pork and veal were "indigestible." This theory has been laid aside in the light of scientific knowledge.

## *The Importance of Protein*

Protein is one of the most important of the food elements. Without it, life could not exist, although the same is true of the other principal elements. Proteins are composed of a number of compounds or "building stones" called amino acids. Some foods contain ample amounts of the necessary acids while other foods are quite low or even entirely lacking in them. Certain of the amino acids are necessary, however, for proper nutrition, and the foods which together make up the diet should contain them all.

Animal proteins, which are furnished by animal foods such as meat, fish, and eggs, are complete proteins, in that they furnish all of the amino acids and therefore, as pointed out by Professor MacLeod, the proteins in meat most nearly meet the protein needs of the body. (See Page 22.)

The function of proteins is to build and repair the tissues of the body. Protein is a source of the energy which the body needs to carry on its daily activities. The body is constantly using up its energy and needs a new supply regularly.

Within certain limits, it has been possible for scientists to determine just how much protein the body requires to perform its normal functions, but in the opinion of Forbes and other authorities it is considered wise to consume liberal, rather than limited, amounts in order to provide for emergencies and to insure against any deficiency of this important element. (See Page 23.)

Meat would be an important food on account of its protein content even if it did not furnish any of the other necessary elements.

## *Meat's Minerals* ✓

Foremost among the minerals furnished by meat is iron. The principal function of iron is to build up a supply of red blood. The blood-building properties of meat are of great value in the prevention and treatment of pernicious anemia, as discussed on a

later page. The meats which are richest in this valuable iron are the livers, hearts, and kidneys. When compared on the basis of the amount of iron in an average serving, as shown on the chart prepared by the American Medical Association, meat ranks foremost as a source of iron for the human body. (See Page 24.)

Iron is present also in relatively large quantities in most other meat cuts, especially beef.

Phosphorus, another important mineral required by the bones and other tissues, likewise is furnished in sufficient quantities in meat of all kinds. Meat is low in calcium, a mineral furnished in more adequate quantities by such foods as milk and green leafy vegetables.

## *Vitamins*

Meat makes a modest contribution of vitamins to the diet, but, for the most part, is not one of the foods which are rich in these elements. Livers, hearts, and kidneys, however, do supply an abundance of vitamins. The layman or the housewife, who is more interested in proper nutrition than in scientific analysis of the diet, need not devote a great amount of time to a study of the various kinds of vitamins and their sources and functions. By including with meat green leafy vegetables, fresh fruits, and milk in the daily diet, an entirely adequate supply of all vitamins is assured, regardless of the amounts which are furnished by such foods as meat and cereals.

## *Warm Weather Diet*

The individual who is engaged in strenuous labor all year 'round has little need of varying his diet with the seasons, although he may prefer to eat a little less fat and starchy food in the summer months.

People who lead sedentary, or inactive, lives usually prefer to reduce the amount of fat and starchy foods in their diet during the warm weather period. Those who exercise more in warm weather than in the other seasons may need to eat even more of most kinds of food. However, except for these variations, well-informed authorities on nutrition recommend that the well-balanced diet be followed as carefully in summer as in winter, because the needs for proteins, minerals, and vitamins remain the same at all seasons.

Meat, especially lean meat, is not primarily a heat-producing food. Its use in warm weather is justified because of its proteins and minerals.

## *The Cold Weather Diet*

The strength and energy furnished by meat also are important in the cold weather diet, and the fatter meats supply generous amounts of heat which serve to protect the body against the rigors of winter.

## *The Reducing Diet*

To reduce or not to reduce is a matter for the individual and his or her physician to determine. If weight reduction is undertaken, it may be effected by exercise or by dieting, or both. Dieting to reduce weight need not, in the opinion of authorities, involve starvation. In fact, the individual who is attempting to reduce may continue to eat normal portions of such non-fattening foods as lean meat, green leafy vegetables, and fruit, eliminating only the weight-building foods which supply starches and fats.

The foods just listed—meat, green leafy vegetables, and fresh fruits—supply adequate amounts of protein, minerals, and vitamins, and only small amounts of the fattening properties. Then, too, the meat, although easily digested, stays somewhat longer in the stomach than many other foods and hence keeps away the pangs of hunger which too often put an end to a campaign to reduce weight.

## *Diet and Disease*

The many experiments with foods and diet which have been conducted during recent years by outstanding authorities have shown that in the case of the normal individual practically every food we have been eating in the past is entirely safe to eat, if not eaten in excess and if properly prepared and in good condition. Some foods, it is true, add little or nothing to the diet, but if they appeal to the taste of the consumer and are used with a properly balanced diet they may be eaten without hesitation. In practically no instance has science found it necessary to say: "Never eat this food."

The same experiments have performed another valuable service to mankind by disproving many ridiculous superstitions and erroneous beliefs about certain good and valuable foods.

Meat always has been the central article of the diet of most races and individuals to whom it was available. It was only natural, perhaps, that meat should have been blamed when some ail-

ment which could not be otherwise explained at the time attacked people who consumed generous quantities of meat. Mostly because no other cause could be determined, meat at one time was blamed for the occurrence of kidney trouble, rheumatism, high blood pressure, cancer, hardening of the arteries, arthritis, gout, auto-intoxication, constipation, appendicitis, and certain other ailments. However, as the knowledge about foods and diet increased, through careful medical research, it was found that meat was not responsible for any of these ailments.

## *High Blood Pressure*

Meat, to which high blood pressure at one time was widely attributed, formerly was eliminated entirely from the diet of anyone suffering from this ailment. In the light of newer knowledge, many physicians now do not reduce the protein used or else advise a diet containing liberal amounts of protein, as described by Allen and Sherrill. (See Page 23.)

Several research projects have shown clearly that meat is not a contributing factor in cases of high blood pressure. None of these, however, is more conclusive than the findings of the Life Extension Institute, an unbiased research organization. This Institute found, in a survey of 17,000 policy holders of a large life insurance company, that over-eating and lack of exercise are the chief causes of high blood pressure in Americans, and that high protein eaters were no more apt to have the disease than low protein eaters. Other authorities, notably Strouse and Kelman, Allen and Sherrill, and Mosenthal, have shown by their studies that protein consumption has no relation to high blood pressure.

## *Rheumatism*

Rheumatism yielded slowly to the research of scientists. It has been demonstrated conclusively that infection, and not meat or any other food, is solely responsible for this disease. This decision was reached after seventeen years of study by Drs. Frank Billings, George H. Colman and William G. Hibbs. -

## *Cancer*

Although the causes of cancer are not yet definitely known, it has been demonstrated that meat is in no way responsible. The very fact that cancer is frequent among many groups which sub-

sist on a vegetarian diet is the best evidence that meat can not be the cause. It has been shown through reports of distinguished scientists that this disease is found commonly in India, Japan, and among the negroes of central Africa. These peoples eat little or no meat. Woglom, an authority of high standing, points to the fact that cancer is common not only among non-meat-eating races but also among such animals as the horse, cow, sheep, and rabbit, which eat no meat, and states that there is not a shred of evidence to show that meat is responsible for cancer. (See Page 25.)

Further evidence that meat does not cause cancer is obtained from reports of scientists who have studied conditions among the Eskimos in the far north. These scientists state that cancer is practically unknown among Eskimos, who live on a diet consisting almost exclusively of meat. Some few instances of cancer have been found, but, as pointed out by Dr. H. S. Ross, the noted English physician, large groups have been studied, among which no signs of the disease were discovered. (See Page 25.)

## *Gout* ✓

For many years gout was attributed to excessive consumption of protein, and hence to meat eating. Now it is known that there is no basis for such a conclusion. Dr. Llewellyn, an English physician, points out that much harm frequently has been done by eliminating meat from the diet of victims of gout. (See Page 26.) Dr. Taylor, a widely known scientist, definitely states that there is no basis for the claims that meat is responsible for gout. (See Page 26). Lusk points to the Eskimo, who lives almost entirely on meat but never suffers from gout. (See Page 26.)

Hardening of the arteries was laid at the door of meat until science proved that there was no basis for such a conclusion. (See Page 26.)

It is true that conditions sometimes arise where it becomes advisable to limit temporarily the protein consumption of a patient, and meat then may be removed from the diet for a time, but such instances should not lead to the conclusion that the ailment was due to the eating of meat.

So far as is known, meat, even when eaten greatly in excess, is not harmful and contributes to no disease known to man. This is the view of Lusk, who was referred to previously, and is concurred in by other authorities on nutrition and disease.

## *Meat and the Deficiency Diseases*

Not only has it been proven that meat does not contribute to the diseases which have been charged against it, but it has been found that meat is of great value in the prevention of certain diseases and the treatment of others. Among the diseases for which meat is especially valuable are pernicious anemia, pellagra, scurvy, beri-beri, and rickets. These are known as deficiency diseases and are due to the omission of certain food properties from the diet.

In pernicious anemia the blood lacks a sufficient number of red corpuscles. Drs. Whipple, Minot and Murphy, and a number of other specialists, have found that liver and kidneys are of the greatest value in regenerating the blood—that is, restoring it to normalcy. Other portions of meat, especially beef, also have some value in the treatment of this disease. (See Page 27.) As a result of these findings, liver and other meats have been adopted widely by physicians and hospitals for the treatment of this disease.

Meat, milk, and yeast are of great value in correcting the condition known as pellagra. The use of meat in this connection is described on page 27 by Goldberger and Tanner of the U. S. Public Health Service.

In the treatment of rickets, a disease causing deformities of the bones, meat is important because of its stimulating action, which increases the effectiveness of the vitamins present in the diet, according to Mellanby.

### *Stefansson's Experiences*

Many interesting facts about the value of meat in the diet have been developed by Vilhjalmur Stefansson, the noted Arctic explorer, who spent various periods of time totaling nine years on an exclusive meat diet in the Far North and more recently spent one year in the United States on a diet consisting exclusively of meat, under strict scientific control.

Stefansson's experiences have been given most serious consideration by the medical profession because of the new light which they have thrown on the value of animal protein in the diet.

Dr. Clarence W. Lieb has been Stefansson's personal physician during recent years, including the period of the latest experiment. In addition, Dr. Lieb has had two other patients who have lived on an exclusive meat diet for several years.

With regard to Stefansson's experience with a meat diet in the Far North, Dr. Lieb points out that the explorer reached his maxi-



mum weight (but by no means did he become overweight) while subsisting on animal foods, that he felt better during that nine-year period than at any other time during his life, that constipation and muscular weakness were never present, and that his hair thickened and teeth decay apparently was much less rapid. (See Page 27.)

Dr. Lieb and Dr. Edward Tolstoi, an associate, have reviewed Stefansson's recent experiment on a meat diet in this country. (See Page 28.) They report that the explorer and a companion who also lived on meat exclusively, having lived on meat for eleven months, felt no untoward effects, maintained their weight and were in excellent health. No evidence was found of kidney trouble or other pathologic conditions.

### *Food Fads*

Some of the unfounded charges against meat have been used by quacks and faddists to promote the consumption of some freakish food preparations or "Remedies" which they had for sale. Not only meat, but white bread, certain canned foods, and other good and wholesome commodities have been subjected to attacks from such sources. It is fortunate for the public and for the producers of these foods as well, that medical science has exposed the unsoundness and untruthfulness of such claims.

The resolution passed by the Hennepin County (Minnesota) Medical Society clearly shows the attitude of modern physicians toward food fads and advocates the consumption of such substantial and healthful foods as meat, dairy products, leafy vegetables, fruits and easily digested starches. (See Page 29.)

### *Why Meat is Recommended* ✓

Since meat is looked upon by most people as the central article of their diet—the food around which most meals are built—the value of meat and its contribution to the diet are of the greatest importance. Science has demonstrated clearly, as has been pointed out previously, that meat contains food elements which are essential to continued good health, that meat causes no known disease, and that it actually is of inestimable value in preventing several diseases.

That is why authorities on nutrition recommend meat as an important element in the well-balanced diet. In brief, there is no reason known to modern science why the normal individual cannot eat his meat and enjoy it, with the knowledge that it is a good and useful food.

# Meat

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*(Reprinted with permission from The American Mercury, of  
May, 1929.)*

Advice about diet has become so impassioned and so involved in the United States of late that in some quarters it even acquires a plot and takes on the aspects of a ritual drama. In this drama meat is cast for the role of villain. The details vary according to locale. In certain sections meat is accompanied by a familiar co-fiend—salt. But as it is enacted on the shores of the Pacific the great climax of the piece finds meat alone in the center of the stage, surrounded and neutralized by a chorus of virgins—"Nature's foods."

It is not easy for the historian to determine when or where the doctrine that meat is dangerous originated. Possibly religious prohibitions—meatless days—had something to do with its beginnings. It appeared full-fledged in the maxims of George Cheyne in the Eighteenth Century and has cropped up at intervals ever since, as fads will, with intervening periods of desuetude. Few people nowadays who eat Graham bread realize that it is the eponym of Sylvester Graham, who advocated his system so long ago as 1829. That system excluded meat, sauces, salads, tea, coffee, alcohol, pepper and mustard, and stressed the use of vegetables, bread made from unbolted flour, fruits, nuts, salt and pure water.

In our own day we can say with considerable accuracy, if not where the idea began, at least where and how it was popularized. I have before me the first edition, dated 1892, of a book by Alexander Haig, M. D., entitled "Uric Acid as a Factor in the Causation of Disease." The title page announces that it is a contribution to "the pathology of high blood pressure, headache, epilepsy, mental depression, paroxysmal haemoglobinuria, anemia, Bright's disease, diabetes, gout, rheumatism, and other disorders." Uric acid, it appears, arises from eating meat; the volume states the doctrine clearly.

It had an enormous vogue. It passed through at least four editions, and was going strong at the dawn of the Twentieth Century. It has been called "the most superficial and unreliable

[work] ever recorded on the subject," but that defect was easily forgiven, for it was written in a very readable and convincing manner. As a doctrine for the practicing physicians of the 80's and 90's Haig's argument was almost perfect. In the first place, it was easy to understand: high blood pressure, rheumatism, Bright's disease, etc., were caused by an excess of uric acid in the blood, and uric acid in the blood came from eating too much meat; *ergo*, if you stopped eating meat your high blood pressure, rheumatism and Bright's disease would disappear. Even patients could understand the doctrine and so co-operate in its application. Skeptics expressed doubt about so simple an explanation of the origin of such complicated diseases, but when they were asked what really did cause high blood pressure and Bright's disease, it developed that they did not know, so nobody paid any attention to them. Furthermore, not only was Haig's book interesting and plausible and easy to understand, it was in itself a complete system of medicine. A man who had familiarized himself with its contents was, *ipso facto*, a specialist; he could set up in business as a consultant and get rich. No wonder it was popular!

That its influence still prevails requires no especial effort to demonstrate. How often lately have you heard somebody say in effect, "I'm getting stiff in my joints. Guess I'll have to leave off meat a while"? How many clinical lecture-rooms still echo with variations of that plain blunt doctrine of Haig's: "In a word, Bright's disease is a result of our meat eating"?

That the doctrine was entirely hollow can be demonstrated. But the discussion leads into rather technical fields in organic and physical chemistry. Those who are curious cannot do better, as an introduction to the subject, than to read a series of articles called "Truth and Poetry Concerning Uric Acid" in Volume XLIV (1905) of the *Journal of the American Medical Association*. Here is set out a critical review of what is actually known about the formation and elimination of uric acid in the body. It is enough for the present discussion to note that while it is plainly evident that uric acid is increased in the blood and urine when there is abundant meat in the diet, it is present even when no meat at all is eaten. Nor can it be proved that uric acid actually causes any diseased conditions, even gout, though urates may be found deposited in the inflamed tissues.

## II

The dogma of the danger of meat eating, in our day, splits into two parts. One is that the continuous eating of meat from

the time of infancy onward, in an otherwise healthy body, induces certain diseases to occur. The other is that when certain diseases have actually begun the eating of meat should be interdicted as a measure of treatment—that this procedure will have a beneficial effect. We will examine them in order, but it is worth while pointing out that, though often and persistently confused, they are not at all the same.

The first question—whether the continuous or excessive eating, or, even as it is sometimes put, the mere eating of meat at all, will cause certain diseases to occur, or will shorten life, or is not natural for man—has several avenues of approach. The simple creed of the vegetarian shows one. Meat, he argues, is not man's natural food. We were designed to eat vegetables and fruits, and vegetables and fruits were placed on earth to be our food. Pre-historic man was vigorous and lived to a ripe old age and was never constipated because he consumed a natural diet consisting of vegetables and fruits. This, in brief, is the vegetarian creed.

Now, it needs only a superficial glance at animal nature to see that there is really no such single Divine Plan for the animal dietary. To the ruling force of the universe it would appear that a plant is just as important as an animal, and that, so far as any evidence we have to the contrary goes, it is just as little and just as much designed to suffer destruction in another animal's digestive tract.

Owing to the operation of natural laws, certain animals, such as the cow, the elephant and the giraffe, long ago adapted themselves to an exclusively vegetable diet. The digestive tract of such animals has become strikingly elongated in order to absorb every bit of nutriment contained in their necessarily bulky diet. Various devices, such as four-pouched stomachs and cud chewing, help them to prepare and digest their not very economical form of nutriment. Their digestive juices are designed for reducing carbohydrates (and vegetable proteins and fats) rather than animal tissue. Bacteria which convert vegetable cellulose to a nourishing form are implanted in their intestines. Inasmuch as their food contains a minimal quantity of nourishing substance per cubic mile of bulk, they are under the necessity of eating during the larger portion of their waking time. These animals are the herbivores or true vegetarians.

Another group of animals, of which the dog, the cat, the eagle, and the flea constitute good examples, are designed to consume an exclusively animal diet. Their digestive tract is short, and plentifully supplied with proteolytic enzymes. They avoid vegetable

food and are able to extract proteins, fats, carbohydrates, vitamins and mineral salts from animal flesh. In short, it supplies them with a complete and balanced diet. These are the carnivores, or true meat eaters.

Now, if we examine the structure of the human digestive tract, it at once becomes evident that if man is better adapted to one kind of life than another he is immensely more capable of leading a carnivorous than an herbivorous existence. The human stomach is simple. Digestive juices in the form of pepsin and trypsin, ideally capable of reducing animal flesh to chemical compounds utilizable by the body, are abundantly poured into the digestive tract. The enormous pouch of the large intestine found in vegetarian animal has shrunk to the size of the vermiform appendix. Cellulose, which constitutes so large a part of vegetable food, passes through the human digestive canal unchanged from its original state: the bacteria which convert it to useful forms in the herbivorous intestine cannot be made to grow in man's intestine. The design of his teeth is carnivorous rather than ruminant. But he also has digestive juices which are efficient in reducing vegetable carbohydrates, so that we may perhaps best class him with the robin, the goldfish, and the amœba as an omnivore.

Thus the argument from design, far from indicating that man is not naturally a meat eater, would incline, if it is at all partial, in exactly the opposite direction.

As to prehistoric man, I speak as the most amateurish of diletanti, but it is my understanding that there are a great many things about him that we do not know. According to my advices, for instance, we are entirely ignorant of whether or not he was constipated. There is simply no evidence one way or another, and this is a pity, for many worthy people will never be able to make up their minds as to whether they are his blood brothers until the question is settled. We know nothing certainly as to what his dietary was. But some of the evidence which we have would indicate that he was a hunter of animals, and it is a fair presumption that he used them for food. If this be true, man, as far back as we have any record of him, has been a meat eater.

His digestive machinery is splendidly adapted for converting meat into all the necessary food elements. He converts, or potentially can convert, half the meat he ingests into sugar, and all meat contains some fat; thus we have the three main food elements—protein, fat and carbohydrate—represented in an all-meat diet. This, of course, should not be interpreted to mean that anyone advises his fellow men to subsist exclusively on a meat diet. The

ideal human dietary is mixed, and fresh fruits and vegetables and butter and cream and cakes should all abound.

### III

An entirely different approach to the problem consists in comparing the health of man when on an exclusively animal diet with the health of man on an exclusively vegetable diet. The vegetarians are very eager to help us here by giving testimony as to the improvement in their health on a vegetable diet, but we must rule them out. Vegetarians, in general, have a little too much of the crusading spirit to be good observers or even good reporters. We must take a more objective example, and such an example we have. The Eskimos constitute a race which, from necessity, has always eaten an exclusively meat diet. If meat eating causes high blood pressure and kidney disease we should find an extremely large incidence of such maladies among the Eskimos.

We have several reports on the subject. All agree. Dr. William A. Thomas accompanied the MacMillan Arctic Expedition of 1926 and with their diet in mind examined a group of Eskimos. I abstract his conclusions from his extremely interesting paper in the *Journal of the American Medical Association* (Volume LXXXVIII, No. 20, page 1559, May 14, 1927). All Eskimos live entirely on a meat diet from the time they are weaned. Babies are nursed by their mothers for four or even six years, until their teeth are strong enough to eat meat. Dr. Thomas examined 142 adults between the ages of forty and sixty years. Of these only three had blood pressure so high that they would not be accepted by an American life insurance company. In a group of nine persons over sixty years old, none had a blood pressure over 140 (160 being the limit beyond which most insurance companies refuse to accept risks). Kidney disease could be suspected in only thirteen of a group of 202 people over sixty, with positive proof of it in only one case. Dr. Thomas' conclusion is: "The Greenland Eskimo on a carnivorous diet exhibits no increased tendency to vascular and renal disease."

Other experiments deliberately undertaken in order to make observations along these lines confirm this view. Dr. Vilhjalmur Stefansson, the Arctic explorer, convinced that man can subsist on a meat diet alone, undertook himself to live for a long period exclusively on meat and found no change in his general bodily status. His blood pressure remained normal and functional tests indicated no kidney involvement.

Many special researches indicate the possibility of a contrary

opinion. A typical report is that of Newburgh and Clarkson on "The Production of Athero-Sclerosis in Rabbits by Feeding Diets Rich in Protein" (*Archives of Internal Medicine*; Volume xxxi, No. 5, 1923). Athero-sclerosis may be loosely translated as hardening of the arteries. Newburgh and Clarkson found that rabbits fed on a high protein diet developed plaques in the aorta and other blood-vessels. It is well known, however, that rabbits under normal circumstances are very subject to this change. Newburgh and Clarkson met this objection by saying the changes they found in their rabbits were of a different sort and more numerous than those found under ordinary circumstances.

On the kidney question white rats were selected as experimental animals and we have a number of reports as to the effect of feeding them high protein diets. (For instance, Jackson and Riggs in the *Journal of Biological Chemistry*, Volume LXVII, page 101, 1926; and Newburgh and Curtis in *Archives of Internal Medicine*, Volume XLII, No. 6, 1928.) The reported results are conflicting, some indicating that the diets did injure the kidneys, others that they did not. It is obvious, however, that the use of a strictly herbivorous animal like the rabbit does not furnish a fair comparison with man, while the period of time necessary to produce kidney lesions in the carnivorous rat by protein feeding represents comparatively in the life-span forty years of a man's life, and in that time the degenerative changes of age might well show effects in the kidneys. I have given an unbiased account of these experiments because I wish to present the evidence on both sides, but I think the conclusion is justifiable that the animal experiments thus far recorded throw no light on the action of meat diets in man.

#### IV

So much for the results of the main lines of evidence regarding the effect upon the normal organism of the continuous eating of meat and meatlike foodstuffs. We are strongly urged to the conclusion that no proof exists of the harmful results of such a dietary.

When certain diseases have actually occurred, is the interdiction of meat eating justified? Into this aspect of the question I have no intention of penetrating. There is certainly much justification for such a line of management, in my opinion, and anyone who has been urged into a diet of this kind by his physician should certainly continue it with the assurance that it is so justified. But I wish to emphasize that the question is in no way related to the first part of the problem. The kidney excretes almost entirely the end-products of the cleavage of meats and other protein foodstuffs;

therefore, if through disease its functions become impaired the reduction of meat eating is entirely rational, as otherwise the deleterious end products of protein metabolism will not be excreted but will circulate in the blood. But this does not at all mean that meat eating caused the kidney disease in the first instance. The point is worth stressing because considerable confusion has arisen over it.

Another source of misunderstanding consists in interpreting nutrition experiments, undertaken to demonstrate the minimum amount of protein upon which a man can live, as offering a clue to the dangerous level of protein intake. The best known of these nutrition experiments are Chittenden's: he showed that Yale athletes remained healthy and able to do vigorous muscular work on an intake of about sixty grams (two ounces) of protein a day. This is about half of the lowest amount other physiologists found sufficient; Voit put at 118 grams of protein a day, and Atwater at 125. The average dietary contains well over 200 grams a day.

The misunderstanding arose when Dr. Chittenden announced not only that a low protein diet was possible but that it was positively advantageous—that under its influence his rheumatism, melancholy, sick headaches, and bilious attacks left him and his bodily vigor was greatly increased. All this has since been discounted as the natural enthusiasm of a specialist who had just concluded an arduous research. It impressed no one except professors of political economy. Chittenden's experiments showed only that a man *can* subsist on a low protein intake for short periods. There is certainly no justification in forcing them to mean that it is unhealthy to increase the protein in the food above the lowest possible point.

A final inquiry remains: Does the omission of meat from the dietary result in any disease? There is certainly more evidence that the lack of meat harms than that its presence does. Definite bodily changes due to dietary inadequacies are well known—the food deficiency diseases. Their manifestations have been found to be due largely to the lack of certain substances not yet separated chemically which are found in fresh food and are called vitamins. Most of these vitamins are found in fruit and vegetable juices; some in fats such as cod-liver oil and cream. But there are well-defined diseases, such as pellagra and a host of less certainly proved disorders, which seem to arise when meat or animal products are withheld from the diet. Thus, in addition to the hygienically necessary vitamins found in vegetables, it is likely that similar kinds of ingredients, found in meat, probably the amino-acids, are indispensable to perfect health.



Adult scurvy responds to fresh meat as well as to fresh vegetables. Stefansson found in the Arctic that victims improved promptly when fed raw or slightly cooked meat: fruit juices were not available. Adult scurvy develops not infrequently in the midst of civilization.

Pellagra, according to the foremost American authority, the late Dr. Joseph Goldberger, is entirely due to a deficiency of certain amino-acids found in protein foods. "It depends," says Vanderhoof, "on some undetermined lack in a diet consisting of disproportionately small quantities of animal or leguminous protein and disproportionately large quantities of vegetables." Goldberger and Wheeler produced pellagra experimentally in eleven volunteer inmates of the Mississippi State Penitentiary by the exclusion of fresh meat, milk and eggs from the dietary. The disease is due entirely to dietary deficiency, according to Goldberger, and depends primarily on "a specific quality of the amino-acid makeup of the protein supply."

Finally, there is the hypothesis that pernicious anemia is a meat-deficiency disease. The remarkable cures which have been effected in this disease by feeding the patients liver support it. A colleague, Dr. P. T. Bohan, long before liver therapy was announced, became convinced that his pernicious anemia patients had been omitting meat from their dietary for years, and he collected a remarkable series of patients whose stories, taken for what they were worth, indicated that they had eaten only 20% of the normal dietary's meat allowance for ten to twenty years before their anemia developed.

## V

For all these reasons, I am convinced that "health" warnings against the eating of meat are not only absurd but positively harmful.

Vegetarians escape danger by eating animal products in the form of eggs and milk; they also obtain protein in such leguminous vegetables as peas and beans, although this is an uneconomic method of supplying it. (There are no conclusive experiments which show that human life can be supported efficiently on vegetable protein alone. No one has ever carried a human being from birth to old age on an exclusively vegetable diet. Vegetarians usually become converted after they have reached adult life; hence they have their growth, and their nutritive processes are initiated before they adopt their ill-balanced dietary.)

Of course, it is possible to construct a diet out of vegetable food alone which is theoretically adequate, obtaining the protein from peas, beans, rice, wheat and nuts. "Vegetarianism is not a physiologic impossibility," says a dietetic authority. "Thousands of devotees stand ready to refute such an assertion by the example of their own experiences. The real problem from a nutritional standpoint centers in the alleged superiorities of the vegetable regime." But some Chinese physiologists recently have attempted to maintain rats, which, like man, are natural omnivores, on an exclusively vegetable diet, and conclude that no vegetarian diet is known which affords optimal nutrition for an omnivorous animal.

Of course, when vegetarianism becomes obsessive and is linked with the idea of auto-intoxication the victim is compelled to give up all other mundane affairs and devote himself exclusively to his diet.

Man instinctively is a meat-eating animal. His ideal diet, of course, is not one-sided in any direction. It is a mixture of all kinds of foods—meat, fruits, vegetables, fats, sweets, nuts, salts, bread and water—fresh and preserved, cooked and raw.

# Appendix

## *Meat and Palatability*

"As a matter of practical dietetics, no consideration compares, as a motive for eating meat, with the fact that we like it, and this liking has an important bearing in that it incites the stomach to secrete gastric juice of higher acidity and digestive power than that induced by the eating of other foods."—*Dr. E. B. Forbes,\* Director of the Institute of Animal Nutrition, Pennsylvania State College, in "The Use of Meat."*

"The entrance of any food substance into the normal stomach causes the formation of gastric juice which attacks the food substances and begins to digest them. However, if you examine the gastric juice found when you eat meat and compare it with the juice which is formed when you eat other foods, you will find that the meat had caused the formation of a juice which contains more hydrochloric (muriatic) acid. The explanation is simple. Meats contain a class of substances called 'extractives,' which are not present in other common foods. . . . Due principally to the presence of these 'extractives' . . . the eating of meat causes the production in the stomach of extra large quantities of gastric juice, which has a pronounced digestive action. A scientist would speak of the extractives as 'strong gastric (stomach) stimulants.' We may say, then, that the stomach responds more quickly and in a more decisive manner to meats than to any other class of foods.

"Veal is a perfectly satisfactory food, and in our experience acts much the same in the stomach as beef and lamb. If any normal person cannot take care of veal properly it is due in most instances to idiosyncrasy."—*From "What We Eat and What Happens To It," by Philip B. Hawk, Harper & Brothers, 1919.*

"A quarter-pound of meat stimulates almost twice as much gastric juices as does a quarter-pound of bread or other carbohydrates, and is correspondingly better for normal digestion. Doctors, dietitians and gastronomers in general did not know that fact until last week when they received a leaflet from Drs. Martin E. Rehfuss and George H. Marcil, of Philadelphia.

"Those two investigators fed healthy students and hospital patients roast beef, hamburger (Liberty) steak, beefsteaks, stewed beef, boiled corned beef, dried beef and bologna sausage. They fed pork and lamb, fish, chicken and guinea-hen, eggs and milk, toast gruel, oatmeal, rolls, potatoes, vegetables. And immediately after each meal, they slid a well lubricated yard of stomach tubing down each test case's gullet. By lowering the free end of the tubing they

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\* NOTE—At the time of making this statement, Dr. Forbes was Director, Department of Nutrition, Institute of American Meat Packers.

siphoned out a teaspoonful or so of the case's stomach contents and every few minutes they were able to study the progress of digestion.

"One very new thing they discovered: some normal 'rapid' stomachs digest a meal in two and a half hours. Other normal 'slow' stomachs require three and a half hours for the process. Those rates pertain only to the stomach. Digestion proceeds all the way down the ten yards of bowels.

"As stomachics, eggs and milk stand between the meats and carbohydrates.

"In medicine Drs. Rehfuss' and Marcil's discoveries have several diagnostic values. Persons giving a similar gastric response to bread and meat cannot be considered normal. Gastric digestion of meat is somewhat impaired in heart and kidney diseases, in blood poisoning. In peptic ulcer, meat digestion is not impaired so far as concerns the stomach's ability to secrete gastric juices. If a patient fails to secrete the juices on both meat and bread diets, that is serious. Such failure is a sign of cancer of the stomach, of pernicious anemia, of delayed healing in lobar pneumonia and inflammation of the gall bladder.

"In physiology and biology this quicker, more ample response to meats than to breads seems to confirm the popular belief that man is fundamentally more carnivorous than herbivorous. In gastronomy, the Philadelphia revelations indicate that for appetizers, hors d'oeuvre, antipasto, Zuspise, or a 'chaw' of preserved beef might well be substituted for cocktails."—*Reprinted from Time, of April 8, 1929.*

## *Meat and Digestion*

"Meat protein is usually digested quite rapidly and shows a high percentage of absorption from the digestive tract, the average 'coefficient of digestibility' being about the same for the protein of meat, milk, and eggs, viz., 97 to 98 per cent. . . .

"The digestibility of the fat of meat is influenced by the amount eaten and its mechanical condition, whether in large or small masses. In favorable circumstances 95 per cent. or more of the fat of meat is digested and utilized."—*Henry C. Sherman, Professor of Chemistry, Columbia University, in "Food Products."*

## *Protein Requirements*

"It is quite clear that man can get along under ordinary conditions with much less protein than he usually takes; but that really proves nothing, for the question is not, can he, but should he, so deprive himself? Are instinct and custom wrong, and is Chittenden\* right? That is the question. To answer it, many studies

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\* Chittenden, a physiologist, advocated a restricted protein diet, on the grounds that protein consumption was wasteful. He advised a maximum consumption of 60 grams of protein per day for the individual. The standards most frequently used at this time by nutrition specialists show that from 60 to 120 grams of protein per day are required in the diet of the normal adult. At the present average rate of consumption in this country, meat supplies only about 20 grams of protein per day per person. Therefore, meat is furnishing only about one-third to one-sixth of the protein requirements. These figures show clearly that meat protein is not being eaten in excess.

have been made of the condition of peoples who for economic or other reasons are compelled to live on less protein than the average. Are these people healthier, less prone to infections and degenerative diseases, and more efficient mentally than others? . . . It has been quite clearly shown that, when the protein allowance is materially reduced, the people as a whole are less robust, mentally inferior, and, instead of being less prone to the very diseases which are usually supposed to be due to overloading of the organism with useless excretory products, are more liable to suffer from them.

“That a decided reduction in protein weakens the defense of the organism against infection is probably due to the fact that the fluids of the body normally contain a great variety of so-called antibodies—that is, of highly complex substances that are largely protein in nature. When bacteria, or the poisons produced by them, enter the body, they are met by one or more of these defense substances and destroyed or neutralized. Now it is clear that there should always be a surplus of protein-building materials from which the antibodies may be constructed. Such an excess will constitute a ‘factor of safety’ against disease.”

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“It is therefore apparent that the most valuable proteins will be those that contain an array of units that can be reunited to form all of the varieties of protein entering into the structure of the body proteins. Naturally, the protein which most nearly meets the requirements is meat protein.”—*Dr. J. J. R. MacLeod, Professor of Physiology at the University of Toronto, in “Physiology and Biochemistry in Modern Medicine,” pages 607-628.*

“. . . as a general practice it is vastly safer to health for the public to consume meat even in superabundance than to attempt either to eliminate meat from the diet or to reduce meat consumption to a minimum. The general effect of the recent revolutionary researches in animal feeding, in which we have much better opportunities to judge of final results than in observations on human nutrition, has been to favor the liberal consumption of protein.”—*Dr. E. B. Forbes,\* Director of the Institute of Animal Nutrition, Pennsylvania State College, in “The Use of Meat.”*

## *Meat and High Blood Pressure*

“As the treatment of hypertension (high blood pressure) by protein restriction is as widespread as it is unwarranted in ordinary cases, we have intentionally defied this tradition by giving diets liberal in protein and particularly in red meat in all cases without significant nitrogen retention. . . .”—*Allen and Sherrill, in the Journal of Metabolic Research, October, 1922.*

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\* NOTE: At the time of making this statement Dr. Forbes was Director of the Department of Nutrition of the Institute of American Meat Packers.

# FOOD-IRON

FOOD	HELPING	AMOUNT OF IRON
Beef (Lean)	4 oz.	(570)
Oysters	½ Doz. (3½ oz.)	(445)
Spinach	4 oz.	(432)
Liver	4 oz.	(336)
Molasses	½ oz.	(320)
Wheat Bran	½ oz.	(230)
Egg	2 oz.	(180)
Bread, Boston Brown	2 oz.	(180)
Bread, Graham	2 oz.	(158)
Strawberries	6 oz.	(144)
Potatoes	3 oz.	(117)
Oatmeal	1 oz.	(114)
Peas, Green	2 oz.	(102)
Fish	4 oz.	(101)
Bread, Whole Wheat	2 oz.	(96)
Prunes	1 oz.	(90)
Dates	1 oz.	(90)
Onions	4 oz.	(72)
Banana	1 (6 oz.)	(72)
Cabbage, Raw	2 oz.	(66)
String Beans	2 oz.	(66)
Raisins	1 oz.	(63)
Pineapple	4 oz.	(60)
Milk, Whole	½ pint	(60)
Almonds	½ oz.	(59)
Bread, White	2 oz.	(54)
Tomatoes	1 (6 oz.)	(48)
Sweet Potatoes	3 oz.	(45)
Lettuce	2 oz.	(42)
Beets	2 oz.	(36)
Carrots	2 oz.	(36)
Apple (Fresh)	1 (6 oz.)	(36)
Peanuts	½ oz.	(30)
Turnips	2 oz.	(30)
Cornmeal	1 oz.	(27)

Many Foods Contain Iron.

Compare the Amounts

of Food-Iron in the

Customary Helpings

of Some of

the Commoner Foods.

[An Educational Exhibit by the American Medical Association—24] 24

## *Meat and Cancer*

### **“Does Meat Cause Cancer?”**

“There is not a shred of evidence to show that meat plays a part in the causation of this disease.”—*Wm. H. Woglom, Associate Professor of Cancer Research, Institute of Cancer Research, Columbia University, in Hygeia, of April, 1923.*

“The incidence of cancer on members of certain religious orders has been the subject of statistical investigation by Dr. S. Monckton Copeman, F.R.S., and Prof. Major Greenwood, under the auspices of the departmental committee on cancer of the ministry of health. The committee points out that in the many thousands of pages devoted to speculation on the etiology of cancer a large proportion are devoted to indicating dietetic habits. It has been suggested that rich, abundant food, particularly meat, is a cause; that intestinal stasis due to the diet of civilized mankind is the most important factor, and that the increased use of preservatives in the food industries has a bearing on the increase of mortality from cancer. The late Rollo Russell argued that if the constituents of a diet are a cause, we should study the cancer mortality of persons living under conditions which, except in respect to diet, are comparable with those experienced by populations wherein cancer is a large and measurable factor of mortality. In Cistercian and Benedictine monasteries, in which the total number of the votaries over a period of about twenty-six years was 420, he found recorded only one death from cancer, this being attributed by him to the exceptional use of a strong irritant (pepper). The observations of Russell were the starting point of the present inquiry. The dietetic habits of the Carthusians, Benedictines, Cistercians, Carmelites and Dominicans were studied, the two last named not being enclosed orders, and both English and Belgian data were analyzed. The next step was to attempt to obtain an accurate record of the ages and lengths of time under observation of the persons whose risk of dying of cancer it was sought to measure, with the certified causes of death. The ecclesiastical authorities of five religious houses in England and one in Belgium, and the staff of the general register office furnished particulars from which life tables could be compiled, the standard of expected death being taken from the tables of the British Official Annuity Experience.

“Analysis of the data supplied proved that fatal cancer occurs in populations abstaining from flesh food, and does not lend support to the contention that among such populations the relative incidence of cancer is low.”—*From the Journal of the American Medical Association, of March 12, 1927.*

“Mr. Vilhjalmur Stefansson has returned from his expedition to the Arctic and has written to me from Alaska to state that cancer does not exist among the Eskimos. . . . Sir W. MacGregor, Dr. W. T. Grenfell, Mr. Frank Bezley, and more recently Rear Admiral Peary, have all told me that they had never seen a case of cancer among the native tribes of the Far North; and it was their observations which prompted me to ask Mr. Stefansson, on

the eve of his departure in 1914, to make a special investigation. Mr. Stefansson also sends opinions to the same effect from Dr. Grafton Burke and the late Dr. George Howe, who worked for many years on the Yukon River. It may be remembered that Panum half a century ago remarked that the disease was either extremely rare or did not exist in Iceland and South Greenland.

"I think therefore we may safely assume that cancer does not exist in the Arctic. . . ."—*Dr. H. C. Ross, in the "Lancet," a leading British Medical Journal, of March 2, 1919.*

## *Meat and Gout*

"Does the excessive ingestion of protein lead to abnormalities in the metabolism or to auto-intoxication? There is current an idea that the heavy consumption of protein is harmful. It is supposed to be responsible for gout, innumerable ill-defined diseases, and, by the extreme vegetarians, for an intoxication sui generis. For all these claims there is no adequate basis."—*Dr. A. E. Taylor, Director, Food Research Institute, Leland Stanford University, in "Modern Medicine."*

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"It does not seem possible that the various established habits of diet of man can be deleterious to his welfare. For example, the Eskimo lives largely upon meat, and yet does not contract gout. Many authorities have tried to fatigue the kidney by administering meat or meat extracts in large amounts, but have failed to find any pathological changes."—*Graham Lusk, Professor of Physiology, Cornell University, in the American Journal of Public Health, April, 1924.*

"Gout, it has been well said, is the Nemesis of high living, for unquestionably over-eating is most fertile in evoking any latent tendency thereto. Attempts to throw all the blame on any particular foodstuffs, *e. g.*, red meats, etc., on the ground that these highly nitrogenous substances engender excessive formation of uric acid, have failed of their object. . . .

"Ruthless cutting off of protein foods, though not so usual as of yore, is still far too commonly practiced. The number of unfortunate wretches who are docked of their red meats is still astonishing. The 'uric acid' bugbear dies hard. Unless red meat is known to disagree, I never advise a 'gouty' subject to abstain wholly therefrom. I feel sure that it is rarely, if ever, called for, and when enjoined has frequently wrought much harm."—*Dr. Llewellyn Jones Llewellyn in "Oxford Medicine."*

## *Meat and Hardening of the Arteries*

". . . . Nor has it been demonstrated that meat ingestion causes arteriosclerosis in man, although Newburgh has shown that it may in the rabbit."—*From "Diet and Disease," by Graham Lusk, Professor of Physiology, Cornell University, in the American Journal of Public Health, of April, 1924.*



## *Meat and Anemia*

"The striking effect of feeding liver and certain preparations of liver on a number of physiologic processes has been established through experimental investigation. In the case of growing animals it appears, according to the observations of Osborne and Mendel, to promote rapid gains in size. Whipple and his associates at the University of Rochester have demonstrated the extraordinary effect of diets including liver on severe anemias of long standing in dogs. The vigorous regeneration of hemoglobin and red blood cells can be brought about by feeding the hepatic tissue of various species, beef, pig, sheep, calf and chicken having been tested with unquestionable success.

"The striking positive results achieved in the treatment of human cases of pernicious anemia by Minot and Murphy with diets containing large amounts of liver in one form or another have been hailed almost as a panacea for a heretofore decidedly intractable disease. According to these investigators, during a relapse in the malady the ingestion of liver appears to cause the rapid maturation of the megaloblasts crowding the bone marrow. They report the response to the feeding of liver to be reflected in the peripheral blood by a temporary increase in the number of reticulated red blood corpuscles, followed by a marked rise in the total number of erythrocytes and in the concentration of hemoglobin."—*From an Editorial in "The Journal of the American Medical Association," of August 13, 1927.*

## *Meat and Pellagra*

"In our experience, a supplement of not over 40 grams of milk or beef proteins will, for practically all normal individuals, adequately supplement a pellagra-producing mixture of proteins from maize, wheat, rice and cowpeas, but 20 grams (representing somewhat over a pint of milk or a quarter of a pound of round steak) may not do so. Thus, it does not suffice merely to include milk or meat in a diet to prevent pellagra; the quantity of either of these or of other like foods alone or as supplements must be considerable to be effective."—*Goldberger and Tanner in U. S. Public Health Report, Vol. 37, No. 9.*

## *Meat in the Arctic*

"The following facts regarding Stefansson's life in the Far North are noteworthy:

1. He spent altogether eleven and one-half years within the Arctic Circle.
2. He lived for a number of days, totaling nine years, on an exclusive meat diet.
3. He lived for nine successive months on an exclusive meat diet.
4. He reached his maximum weight while subsisting on meat (fish).

5. His sense of physical and mental well being was at its best during that period of his life.

6. He found that the exclusive meat diet worked as well when he was inactive as when active, and as well in hot weather as in cold.

7. Constipation was never present. One month's entire absence from exercise produced neither constipation nor muscular weakness.

8. His hair thickened, and his scalp became healthier.

9. Teeth decay was apparently much less rapid.

"Stefansson avers that not a single case of constipation was observed in 600 exclusively meat-eating Eskimos for a period of three years."—*Dr. Clarence W. Lieb in "The Journal of the American Medical Association," of July 3, 1926.*

## *The All-Meat Diet*

"This is a preliminary report of an experiment to study the effect on human beings of an exclusive meat diet of several months' duration. Our subjects were two Arctic explorers who had spent many years in the Arctic Circle, and while there, lived for the greater part of the time on a practically 100 per cent. meat and fat diet. Preliminary to our observations they were given careful physical surveys. Both were in excellent condition and showed no evidence of impaired health. Following these examinations studies were made of the respiratory exchange, ketogenesis, protein balance, mineral metabolism, fecal-bacteriology, hematology and the chemistry of the blood. This report confines itself to the blood chemical findings.

"Both men have eaten absolutely nothing but meat, cooked or raw. Two experienced dietitians prepared and served the meat. No subjective untoward effects were noted.\* Each subject consumed 120 to 130 gm. of protein and enough fat to total a daily caloric intake of 2200 to 2800. Both men were up and about, and took their exercise in walking. At times when they left the hospital they were accompanied by an attendant so that there might be no criticism as to the supervision of their diet. After four months the intensive metabolic studies were temporarily suspended. These subjects reported only once a month for blood chemical studies which we have continued for the past 11 months.

"The data may be summarized as follows: (1) Two healthy men living exclusively on meat for the past 11 months, felt no untoward effects, maintained their weight and were in excellent health. (2) We find no evidence of renal impairment. (3) The chemical composition of the blood is little affected, except for a slight increase in uric acid and a temporary lipemia. The latter occurred significantly and only after unusual amounts of fat

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\* One of the subjects at one time developed nausea and diarrhea, while on a lean meat diet; the other suffered from an incidental attack of influenza of 3 or 4 days' duration. His recovery was uneventful.

were taken."—*Dr. Clarence W. Lieb and Dr. Edward Tolstoi in the Proceedings of the Society for Experimental Biology and Medicine, 1929, XXVI, pp. 324-325.*

(A fuller report,\* made at the close of the experiment after a little over a year on the all-meat diet, shows that the experimental subjects remained in excellent health. The report states: "No subjective or objective signs or symptoms of a decrease in physical vigor were observed. The same holds true of their mental vigor.")

**RESOLUTION** *passed by the Hennepin County Medical Society at the regular monthly meeting held February 4, 1929, upon recommendation of the Executive Committee.*

We, the members of the Hennepin County Medical Society, go on record decrying the fads which prevail today, and especially the food fads which tend to foist on the public high-priced patented foods, which are often misrepresented by their elaborate methods of advertising. The substitution of these highly priced, patented foods not only very often has become a detriment to the health of the consumer, but also has become the source of an alarming economic condition, due to the great decrease in the consumption of wheat, meat, and other products of the farm.

Very few of these fad foods can take the place of the older staple foods: namely, good meat, dairy products, green vegetables, fruits and the better grades of bread prepared from white flour. The present-day indiscriminate substitution of an excess of rough foods, such as flours containing bran, and the irritating vegetables, is producing a great deal of unnecessary discomfort and chronic dyspepsia, and has reached proportions of a distinct health menace. The similar tendency to eliminate animal proteins from the diet may also become a menace to the public health.

(1) Any balanced diet should contain some animal protein, fruits, vegetables, especially the leafy vegetables, for their vitamin and mineral salt content, digestible fat, such as butter fat, and sufficient easily digestible carbohydrates to afford readily available energy.

(2) Carbohydrates, including sugars and starches, but especially starches, furnish the American public their main fuel for energy, the quantity varying with the amount of physical activities which the individual expends. Much of the starch should be supplied by the most available and easily digestible foodstuffs, of which white flour is the best example, as bread, if baked sufficiently to break up the raw starch granules.

(3) Starch furnished by too rough a diet may not only have a cathartic action, due to irritation, but also the starch granules are so covered by a cellulose envelope as to prevent their availability to the action of the digestive juices.

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\* Dr. Clarence W. Lieb in the Journal of the American Medical Association 1929, XCIII. pp. 20-22.

The allegation that white bread, meat or any other staple food, when employed in mixed diet is responsible for certain grave illnesses is not supported by scientific facts.

(4) The leafy vegetables contain considerable amounts of refuse non-irritating to the digestive tract, which are therefore very valuable to promote good elimination.

We desire, in the public interest, to place on record that in our opinion:

(1) The exaggerated claims for various fad foods are entirely unwarranted by scientific evidence of practical experience; and the advertising and other propaganda furthering their substitution for the older articles of diet should be condemned.

(2) The danger of nutritional deficiencies has been grossly exaggerated. No one food is a perfect food; but a diet consisting of dairy products (especially milk), leafy vegetables, fruits, meats, and easily digested starches for heat and energy, furnishes an excess of all food factors necessary for proper growth and nutrition and resistance to disease.

(3) Any variation from a normal common-sense diet should be prescribed by a properly trained advisor only after a careful study of the dietary requirement of the individual seeking advice.

HENNEPIN COUNTY MEDICAL SOCIETY.

(Signed) N. O. PEARCE,  
President.

(Signed) ERLING W. HANSEN, M.D.,  
Secretary.


Minneapolis, Minnesota.

[SEAL]

Dear Dr. Kellogg: I would like  
you to print in "Good Health" a reply  
to this. Mrs. Emery, on old Sat. to Good  
Health.

STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC HEALTH  
WALTER M. DICKIE, M. D., DIRECTOR

W. C. Harriott  
Mantua, Calif.



**Weekly Bulletin**

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Vol. VI, No. 49      January 14, 1928      GUY P. JONES  
EDITOR

**THE NO MEAT FAD.**

By M. E. JAFFA, M.S., Chief, Bureau of Food and Drugs.

There have appeared in the daily press statements, both in the form of communications and advertisements, indicating directly or indirectly that meat is not advisable as a food and, furthermore, is the cause of certain diseases or disorders of metabolism. In view of these utterances it would seem pertinent to present facts for the purpose of conclusively proving how absolutely incorrect they are.

Meat when taken into the body can either build tissue or yield energy and therefore is a food. But as with cloth so with food: there are different qualities, low, medium and high. Similarly there are foods of low biological value, medium and high. The question is, to which class does meat belong? In order to answer this question we must have a yardstick or a means of measuring the biological value of a food or food product.

It is admitted by all that meat belongs to the class of nitrogenous or protein foods. It is, therefore, only necessary to deal with that class of foods. In other words, then, what is the measure of the biological value of a protein? It is its ability to

- a. Build the muscles, brain, heart, liver and other deep-seated tissues of the body.

b. To repair the daily nitrogen wastes. Any protein which can fulfill these conditions is, biologically, eminently valuable, but those proteins with high digestion coefficients which can accomplish this purpose with the least outlay of internal energy on the part of the body are of the highest biological type. It must be remembered in this connection that every operation, every process of production on the part of the body, whether it be mastication, digestion, assimilation, respiration, etc., calls for an expenditure of internal energy usually expressed in calories. When any food is ingested a certain proportion of the total energy is lost in (a) the undigested material, (b) in the processes of production just referred to, sometimes called work of digestion. It is of great importance, therefore, to state that the protein and fat of meat possess very high digestion coefficients. In other words, then, there is lost to the body but little of the protein or fat when meat is eaten. In fact, it has been stated by eminent authorities that were it not for the "metabolic products" found in the excreta, the respective digestion coefficients for protein of meat, milk and eggs would be practically 100 per cent. This can not be stated of the protein of the cereals or that of any other food of vegetable origin.

Meat should be considered exceedingly important for the invalid and the convalescent, in that the system has been depleted of tissue and needs rebuilding, restrengthening. Meat, milk and eggs stand out prominently as sources of good protein; and in this connection it may be stated that meat has been proved especially valuable for the regeneration of the blood supply in anemia caused by loss of blood. This fact has been most conclusively confirmed by the experiments of Dr. George H. Whipple and associates at the Hooper Foundation for Medical Research, University of California Medical School. The result of their experiments showed that blood regeneration may be completed in two to four weeks with cooked liver as the protein food. Anemia will also be completely repaired within three to four weeks if the dog is given a liberal diet of meat or beef heart. The superiority of meat in this respect is more fully appreciated when Dr. Whipple states that a diet of white bread and skimmed milk may cause a slow, steady gain in blood pigment volume from week to week, but the time required for complete blood regeneration is six weeks or longer.

Many other illustrations could be given indicating that meat is a most valuable food for the invalid and the convalescent in that it supplies good protein most easily digested, and also contains flavors and extracts which at times are necessary to stimulate the stomach to better action than otherwise would be possible.

One of the best answers to those who oppose a meat diet is to quote from the life history of Vilhjalmur Stefansson as given in the journal of the American Medical Association, Vol. 7, No. 1, July 3, 1926. The following facts regarding S's life in the far north are noteworthy:

1. He spent altogether eleven and one-half years within the Arctic circle.
2. He lived for a number of days, totaling nine years, on an exclusive meat diet.
3. He reached his maximum weight while subsisting on meat (fish).
4. His sense of physical and mental well being was at its best during that period of his life.
5. He found that the exclusive meat diet worked as well when he was active as when inactive, and as well in hot weather as in cold.

It has been stated by opponents to the use of meat that the protein content of meat differs from that of milk and egg in that the latter two do not contain the

nitrogenous extractives as does the former. These extractives are the nitrogen compounds found in soup, and particularly in meat extracts. It is these compounds which have given rise to the statements that meat is intrinsically poisonous, in that the nitrogenous extractives are conducive to the formation and retention of uric acid in the human system. Such theories are based primarily on the writings of Dr. Alexander Haig, an English physician, who published a book some years ago, indicating that many diseases were due to the eating of too much meat. Naturally in the commercial meat extracts these compounds predominate as far as protein is concerned, because such products are the result of the concentration of soups, and continued ingestion of them would be undesirable. The percentage, however, in ordinary meat as we find it is not sufficient to be in any way injurious or undesirable to the average healthy person, be it man, woman or child. And, furthermore, the uric acid theory of disease has been more or less exploded. It is true that no matter what the form of diet, there will be uric acid formed as one of the end products of digestion, but if a person's system is in good order and the kidneys working in a normal manner he need not be afraid in any way of an injurious effect from the uric acid produced. It will be eliminated. If, however, there is a pathological condition present, the case is different and a physician's advice is called for.

This important question might well be summarized as follows:

1. Meat is a food easily digestible and well assimilated.
2. Meat furnishes protein essential for:
  - (a) Growth and optimum development in the young.
  - (b) The maintenance of health and activity and the ability to work in the adult.
  - (c) The invalid and convalescent.
  - (d) Certain types of anemia.
3. The rational use of meat by the normal, healthy individual will not be productive of any pathological conditions; that is, will not bring about disease or disturbed metabolism.
4. The rational use of meat is one of the potent factors in preventing the so-called deficiency diseases, in that those living on an adequate diet have much greater resistant powers than those living on a low protein level.



"He cures the greatest number in whom most men have most faith."—Galen.

## Announce Program For Food Clinic.

The program on the food clinic as a demonstration of the place of dietetics in the treatment of diseases, to be held at Lane and Stanford Hospital, San Francisco, January 16-28, is printed here. This clinic is to be directed by Miss Frances Stern, Chief of the Food Clinic of the Boston Dispensary, Boston, Massachusetts. It will be held under the auspices of the Stanford University Medical School and the California Tuberculosis Association. The program has been prepared by a committee, composed of Dr. Adelaide Brown, chairman; Dr. William Ophuls, Dr. R. G. Brodrick, Charlotte I. Sloan and Mrs. Edythe Tate Thompson. The evening sessions will be open to the general public. Morning sessions will be held for physicians only and afternoon conferences will be held with dietitians, social service workers and public health nurses. Following is the program:

### Evening Program.

#### General Public.

Place—Auditorium of Nurses' Home, 2360 Clay street.

Time—8 p.m.

Dates—Monday, Wednesday and Friday, January 16, 18, 20, 23, 25 and 27, 1928.

Each lecture is supplemented by a food demonstration by Miss Stern.

First—January 16: Wm. Ophuls, M.D., presiding. Subject, Normal Diet. Alonzo E. Taylor, M.D., Lecturer Food Research Department, Stanford University.

Second—January 18: Frank W. Lynch, M.D., presiding. Subject, Prenatal and Diet of the Nursing Mother. Alice Maxwell, M.D., Professor of Obstetrics, Stanford Medical School.

Third—January 20: Mrs. H. A. Kluegel, presiding. Subject, The Runabout Child. Langley Porter, M.D., Dean University of California Medical School.

Fourth—January 23: Mrs. E. J. Mott, presiding. Subject, The School Child. Wm. C. Hassler, M.D., San Francisco City and County Health Officer.

Fifth—January 25: George E. Ebricht, M.D., presiding. Subject, Obesity. Hans Lissner, M.D., Professor of Medicine, University of California Medical School.

Sixth—January 27: R. G. Brodrick, M.D., presiding. Subject, Diet in Disease. Arthur L. Bloomfield, M.D., Professor of Medicine, Stanford Medical School.

### Program.

#### For Physicians Only.

Place—Lane Hall, Sacramento near Webster street.

Dates—Wednesday, Thursday and Saturday, January 18, 19, 21, 25, 26 and 28, 1928.

Hours—11.30 a.m. to 12.30 p.m.

First—January 18: General Medical Diseases. Dr. A. L. Bloomfield.

Second—January 19: Nephritis. Dr. T. Addis.

Third—January 21: Gastro-Intestinal Diseases. Dr. W. W. Boardman.

Fourth—January 25: Obesity. Dr. Hans Lissner.

Fifth—January 26: Preschool Child. Dr. W. P. Lucas. Underweight Child. Dr. H. K. Faber.

Sixth—January 28: Diabetes. Dr. D. E. Shepardson.

In each lecture Miss Stern will demonstrate, with a patient, the service of a food clinic in carrying out the diet prescribed by the physician.

### Program.

#### Conferences with Miss Stern.

Place—Auditorium of Nurses' Home, 2360 Clay street (above Webster).

Time—4 to 6 p.m.

Dates—Tuesday and Thursday, January 17, 19, 24, 26, 1928. For dietitians, social service workers and public health nurses.

Subject—On the Social Significance of Food.

First—January 17: Charlotte I. Sloan, Dietitian, Stanford Hospital, presiding. Subject, To the Dietitian.

Second—January 19: Miss Ellen Bartlett, Domestic Science Department, San Francisco Public Schools, presiding. Subject, To the Home Economics Teacher.

Third—January 24: Mrs. Max Sloss, Community Chest, presiding. Subject, To the Social Worker.

Fourth—January 26: Eleanor Stockton, R.N., P.H.N., Health Department of San Francisco, presiding. Subject, To the Public Health Nurse.



## Many Rats Killed by Los Angeles County Department.

In the December tenth issue of this publication mention was made of activities in rat extermination now carried on in many cities of California. The cities of Alhambra, Monrovia, Redondo Beach, Whittier, El Monte, Huntington Park and Arcadia were included among other cities engaged in this work but it was not stated that the activities carried on in these places are under the direction of Dr. John L. Pomeroy, health officer of Los Angeles County. These cities have entered into contract with the Los Angeles County Health Department to administer their public health affairs. The Los Angeles County Health Department is specially active in rat control work.



### MORBIDITY.\*

#### Diphtheria.

125 cases of diphtheria have been reported, as follows: Berkeley 4, Oakland 15, Oroville 1, Colusa 2, Fresno County 1, Fresno 1, Imperial 1, Los Angeles County 10, Burbank 2, Glendale 2, Long Beach 2, Los Angeles 28, Pasadena 2, San Fernando 6, San Gabriel 1, Whittier 1, Madera 1, Monterey County 2,

\*From reports received on January 9th and 10th for week ending January 7th.

Napa County 1, Napa 1, Grass Valley 3, Orange County 4, Santa Ana 4, Sacramento 1, San Diego 2, San Francisco 15, San Joaquin County 1, San Bruno 1, San Mateo 1, Santa Clara County 1, Gilroy 1, Mountain View 1, San Jose 1, Sonoma County 1, Tulare County 3, Marysville 1.

**Scarlet Fever.**

159 cases of scarlet fever have been reported, as follows: Alameda County 1, Alameda 1, Berkeley 7, Oakland 19, Fresno County 9, Fresno 4, Humboldt County 1, Corcoran 1, Hanford 2, Los Angeles County 9, El Segundo 2, Hermosa Beach 1, Huntington Park 2, Long Beach 3, Los Angeles 21, Pasadena 2, Redondo Beach 1, Lynwood 2, Hawthorne 1, Monterey Park 1, Maywood 2, Sausalito 4, Alturas 1, Sacramento County 1, Sacramento 4, Ontario 1, Redlands 1, San Bernardino 1, San Diego 6, San Francisco 21, San Joaquin County 2, Stockton 5, San Luis Obispo 1, Santa Barbara 1, Santa Clara County 6, Gilroy 1, San Jose 4, Santa Cruz County 1, Solano County 1, Fairfield 1, Sonoma County 1, Turlock 2, Sonora 1.

**Measles.**

74 cases of measles have been reported, as follows: Berkeley 2, Oakland 2, Los Angeles County 1, Glendale 1, Los Angeles 10, San Fernando 2, Monterey Park 1, Sacramento 3, Redlands 1, San Diego County 4, Oceanside 3, San Diego 4, San Francisco 10, San Joaquin County 1, Stockton 1, San Luis Obispo County 1, San Luis Obispo 23, Mountain View 1, San Jose 1, Red Bluff 1, Tulare County 1.

**Smallpox.**

18 cases of smallpox have been reported, as follows: Alameda County 1, Berkeley 1, Oakland 8, Sacramento 2, San Francisco 3, Mountain View 1, Watsonville 1, Sonoma County 1.

**Typhoid Fever.**

Six cases of typhoid fever have been reported, as follows: Oroville 1, Los Angeles 1, Merced 1, San Joaquin County 1, Suisun 1, California 1.

**Whooping Cough.**

93 cases of whooping cough have been reported, as follows: Oakland 2, Fresno 2, Los Angeles County 5, Alhambra 1, Compton 5, Long Beach 7, Los Angeles 14, Pasadena 2, Salinas 2, Anaheim 2, Fullerton 4, Santa Ana 6, Tustin 5, San Diego County 9, La Mesa 1, San Diego 21, San Francisco 3, San Joaquin County 1, Palo Alto 1.

**Poliomyelitis.**

Nine cases of poliomyelitis have been reported, as follows: Los Angeles County 1, Los Angeles 1, Nevada County 1, Grass Valley 3, Sacramento 2, Vacaville 1.

**Meningitis (Epidemic).**

Five cases of epidemic meningitis have been reported, as follows: Los Angeles 1, Napa County 1, Sacramento County 1, San Francisco 1, Tuolumne County 1.

**Encephalitis (Epidemic).**

Santa Ana reported one case of epidemic encephalitis.

**COMMUNICABLE DISEASE REPORTS.**

Disease	1927-1928				1926-1927			
	Week ending			Reports for week ending Jan. 7 received by Jan. 10	Week ending			Reports for week ending Jan. 8 received by Jan. 11
	Dec. 17	Dec. 24	Dec. 31		Dec. 18	Dec. 25	Jan. 1	
Anthrax	0	0	0	0	0	0	0	0
Botulism	0	0	0	0	0	0	0	0
Chickenpox	260	243	203	410	259	230	275	416
Diphtheria	162	171	140	125	184	154	133	178
Dysentery (Bacillary)	0	1	0	0	1	4	5	1
Encephalitis (Epidemic)	0	0	3	1	0	4	2	1
Gonococcus Infection	110	90	68	125	79	62	94	103
Influenza	28	20	27	33	25	34	36	37
Jaundice (Epidemic)	0	1	0	0	0	0	0	0
Leprosy	0	0	0	0	2	1	1	2
Malaria	0	0	1	0	0	0	1	1
Measles	51	35	41	74	873	596	837	1115
Meningitis (Epidemic)	2	3	2	5	1	5	6	5
Mumps	92	69	65	90	137	57	108	128
Paratyphoid Fever	0	1	1	1	0	0	0	0
Pneumonia (Lobar)	57	48	144	79	51	97	154	109
Poliomyelitis	25	14	12	9	3	0	0	2
Rabies (Animal)	13	5	9	3	6	5	6	6
Rocky Mt. Spotted Fever	0	0	0	0	0	0	0	0
Scarlet Fever	191	191	172	159	274	252	199	220
Smallpox	27	14	20	18	4	10	8	20
Syphilis	204	85	109	123	101	78	119	264
Tetanus	0	1	3	0	0	1	2	0
Trachoma	0	1	1	2	87	5	7	0
Trichinosis	0	2	0	0	0	0	0	0
Tuberculosis	179	131	142	117	152	124	184	149
Typhoid Fever	7	14	8	6	16	17	24	24
Typhus Fever	0	0	0	0	0	0	0	0
Whooping Cough	83	56	55	93	41	52	55	85
Totals	1491	1196	1226	1473	2296	1788	2256	2866



# SOY BEANS

An Oriental food  
thousands of years  
old, and rapidly  
growing in Ameri-  
can popularity.

They are "Tasty,  
Wholesome, and  
Nutritious," are  
strongly Alkaline  
and digest easily.



*Schulman's*  
HEALTH FOODS  
25 Pine Ave., Phone 661-280  
LONG BEACH, CALIF.

# The Famous Versatile SOY BEAN

With a background of thousands of years of history, the Soy Bean now comes to us with its versatility and remarkable values. Its origin is hidden by the mists of the ages. We know, however, that it has long been one of the chief foods of the Orient, and particularly of China. And we know, also, that the physical endurance of the Chinese is proverbial.

L. B. Breedlove, Engineer-Economist of the Chicago Journal of Commerce, recently prepared for his Journal a series of twenty interesting articles on "That Magic Plant, the Soy Bean." In this series he stressed repeatedly the unusual food values of this legume; in fact he gave to it the credit for the remarkable prowess of the Chinese people, which enabled them for centuries consistently to drive off the barbarians who were endeavoring to over-run their borders.

Although many years have passed since Soy Beans were first introduced into America, it has been only recently that they have begun to claim their proper place in the dietary of our people. As Soy Beans grow they develop a peculiar taste, frequently referred to as a "beany taste," and it has required years of experimentation to learn the secret of preparing them in a way that appeals to the American palate. Now this has been accomplished. Properly cooked, their flavor is pleasing, distinctive. They truly are good to eat.

## SOY PROTEINS

Many of our modern foods are deficient in vital elements. As a result thousands who have never known the pangs of hunger are under-nourished, physically impoverished, because their diet is altogether unbalanced and incomplete.

For instance, proteins are vitally necessary to the maintenance of the body. It is protein that provides for the growth of the child and the repair of the body of the adult. Too often our proteins are of poor quality, or are of a type that produce a decided acid reaction. With the exception of dairy products, this is true of all animal foods. Soy proteins, on the other hand, are complete—meaning that they possess all of the amino acids—and are *alkaline* in reaction.

From an article by Dr. Chas. E. Fearn, of Chicago, entitled, "The Value of Soy Beans as Human Food," we quote:

"The value of the soy bean to the diabetic has long been accepted, and also to those infants who are unable to digest milk, *but it is to the ordinary and every day child and growing young people that the soy bean has so much to offer.*" "Here in one single product of nature we have a composite of vital food elements that could only be obtained otherwise, by the use of milk, meat, eggs and butter." And remember, meat and eggs are acid-reacting, while Soy Beans are alkaline.

As a rule we consume too many starchy foods. Soy Beans are extremely low in starch. They are easily digested and do not produce flatulence (gas discomfort).

The body requires several minerals. One of these is iron. However, to be of greatest value it must be accompanied by copper, which is instrumental in making the iron available for the needs of the body. Both are found in the Soy Bean. Calcium (lime) is the principal bone building element, but without phosphorus it can be assimilated only partially by the body—phosphorus must be present for complete assimilation. Both are provided abundantly by the Soy Bean.

Lecithin is a very important element—a constituent of the brain, the heart, the nerve tissues and the liver. It is found in few foods, but is abundant in the Soy Bean. Dr. H. W. Miller, a physician well known both in the Orient and in America for his research work concerning the nutritional values of the Soy Bean, states that one pound of Soy Beans contains as much lecithin as the yolks of six eggs.

## SOY NUTRITION

Conclusion: From the standpoint of balanced nutrition and as a source of elements of unusual quality, the Soy Bean is one of the most valuable foods known. Yet it has not received the hearty support of the American people. Why? Partly due to a lack of popular knowledge concerning its true worth, and partly because of an unfavorable reputation achieved long ago in regard to its flavor. Now all this is changing. The demand is rapidly increasing.

Having an excess of alkali over acid listed at 12.0, as compared with 7.6 for spinach, and 6.9 for raisins—themselves noted for their alkalinity—the Soy Bean is highly useful for balancing acid-reacting foods and for increasing alkalinity. Its honored place in the daily dietary of the Chinese has been won and established by gratifying results achieved consistently through centuries of use—indicating that no unfavorable reaction follows.

By partaking more freely of Soy Beans we can readily supply many of our neglected nutritional needs. Such a food is cheap at almost any price; but Soy Beans are no more costly than many other foods which possess but a few of their desirable qualities.

## LOMA LINDA SOY BEANS

Under the Loma Linda brand are packed the best Soy Beans we are able to purchase. They are selected with great care, scrupulously cleaned, and steam cooked under controlled pressure until tender. The Loma Linda process removes the peculiar taste characteristic of the Soy and by so many considered objectionable. Then, in certain packs, appealing vegetable flavors are added.

These Soy Beans are now canned in four styles:

- (1) Plain, delicately seasoned;
- (2) Plain and Free of Salt—especially for those who find it necessary to eliminate salt from their diets;
- (3) With tomato—This style at present is in most popular demand;
- (4) With Proteena and Tomato Sauce—The most tasty of all, and an unusual food value, but at a price slightly higher than other packs.

In addition the Loma Linda line includes Soy Milk, Soy Mince Sandwich Spread, Soy-Wheat Wafers and Breakfast Cup—a soy-fig-cereal drink for all the family.

"TASTY, WHOLESOME, NUTRITIOUS" is our motto. Great pains are taken to see that all products bearing the Loma Linda name measure up to our own high standards. And we count it a privilege to be of service in bringing to the people of America a class of foods so valuable, so wholesome, so nutritious.

*Sold by*

**THE BETTER GROCERS, LEADING MARKETS  
AND HEALTH FOOD STORES**



**LOMA LINDA FOOD CO.**

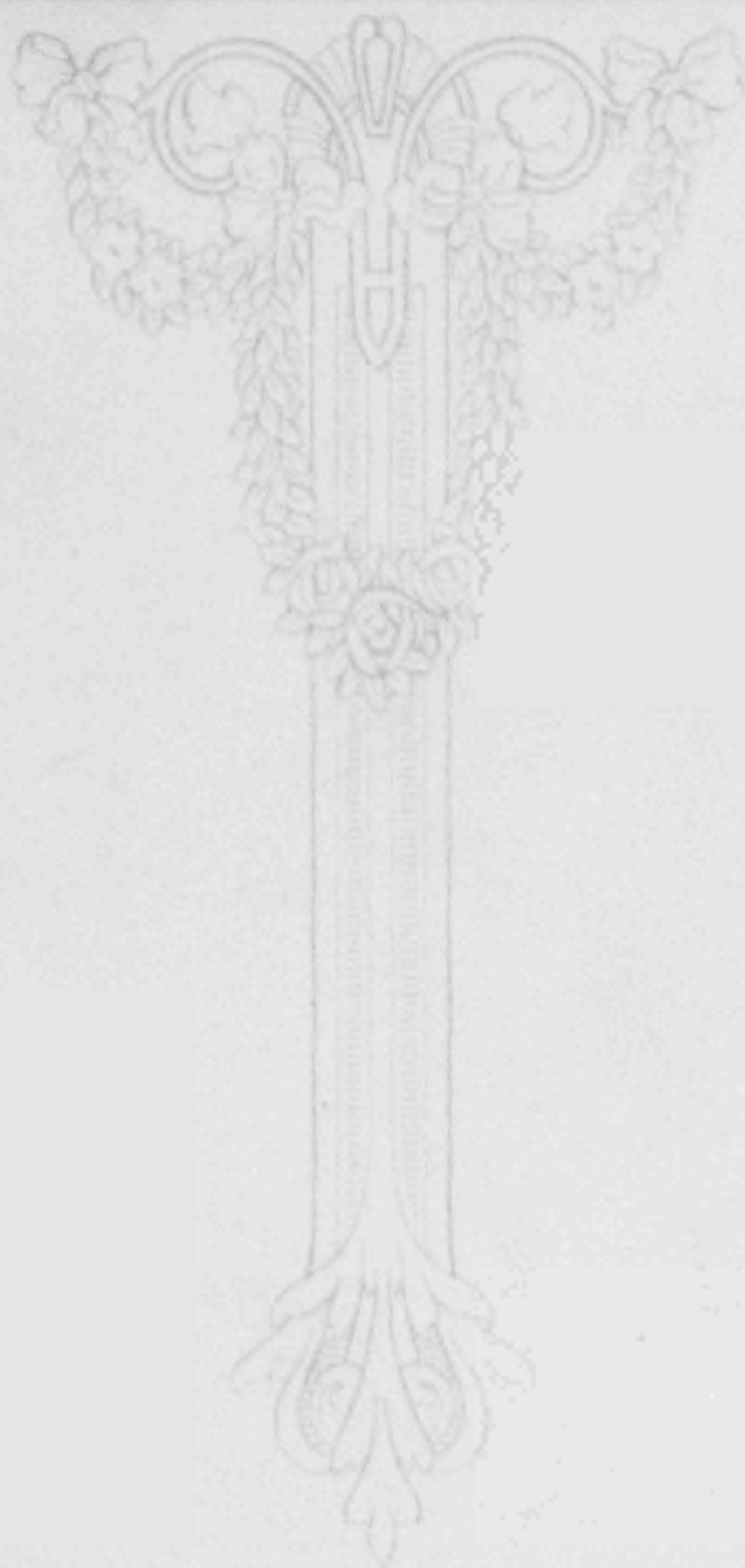
**INCORPORATED**

**LOMA LINDA, CALIFORNIA**

IT PAYS  
TO BE  
GOOD

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# It Pays to be Good

The way of transgression is hard at the end,  
No matter how sweet at the start.  
Illicit delights hide death in their cup,  
A poison that strikes at the heart.

And so it is wise to obey every law,  
Of God or of Nature or man;  
To avoid every fault, to live without flaw,  
Or, at least, be as good as you can.

The lawyers convince us, by arguments long,  
That we must be honest and fair,  
That we must be careful to do no one wrong,  
Or, at least, we must seem to be square.

The preachers insist there's a place very hot  
For those who neglect Holy Word.  
'Twill be useless to say in excuse, "I forgot;"  
We must always be good to the Lord.

But preachers and lawyers one thing overlook,  
When they warn us against greed and  
pelf;  
There's one other party you must not forget,—  
Be sure to be good to yourself.

There are prisons dark and dungeons deep  
Of misery and despair,  
And purgatories blistering hot  
This side of —— you know where,—

Dyspepsia's torments, gulps and qualms,  
Neuralgia's ugly thrusts,  
The horrid twists of rheumatiz,  
And neurasthenia's ghosts,

And gout, and cancer, rheum and itch,  
And all the horrid crew  
Of maladies and miseries which  
Make hell on earth for you.

It is well to be good to your neighbor, my  
friend,—

One must be good to the Lord;  
But for being good to yourself, my friend,  
There's also a great reward.

And so it's well to consider before  
You're laid on an invalid's shelf,  
That it pays to be good to yourself, my  
friend,  
It pays to be good to yourself.

J. H. K.

September, 1916

# SAUERKRAUT AS A HEALTH FOOD

Everywhere throughout the country there is a new interest in sauerkraut. For science has been finding out some remarkable things about this ancient and honorable food.

For centuries, sauerkraut has been a favorite with millions. People like it because of its pleasant sour flavor, its delicious piquancy.

Many who read this booklet will remember the old sauerkraut barrel which stood in a dark corner of the cool cellar. A pungent and appetizing aroma arose from it as you lifted the wooden cover, and within, steeping in rich brine, was the savory and succulent food whose flavor was so satisfying.



"Do you remember the old sauerkraut barrel?"

When you used to dip into the old barrel, probably you did not know that besides satisfying your palate and your hunger, you were fortifying yourself against many ailments. For science now has found that sauerkraut is among the most valuable of preventive and corrective foods.

## Food and Health

High medical authorities are devoting increased study to the prevention and cure of disease by the proper foods, instead of by drugs. It is a growing conviction that a surprisingly large proportion of the ailments of modern civilization is caused by wrong foods.



One of the first questions the doctor asks is "What do you eat?"

Medical men agree that our "civilized" ways of preparing many foods rob them of the health-giving properties which Nature put in them.

The term vitamins has come into general use in referring to those "growth

substances" which are essential to health and strength. No one knows what vitamins really are, any more than science knows what the force called electricity really is. But the fact remains that certain foods provide these growth substances in abundance and that an increased amount of these foods in the diet frequently causes a surprising improvement in health.

Among the simple vegetable foods whose effects upon the human body have been studied by medical men and food authorities is cabbage, and especially cabbage in its most easily digested form—sauerkraut.

### Food Value of Cabbage

Sauerkraut, as everyone knows, is nothing more than fermented cabbage. And cabbage is not only one of the most delicious of vegetable foods, but also one of the most healthful. It contains all the vitamins. It is rich in lime, potash and phosphorus; also in iron and in calcium, the bone-building substance.

For many centuries, cabbage has been a favorite food of mankind. There is on record a poem in praise of cabbage, written in Latin by one Macer Floridus, three and one-half centuries before Columbus discovered America.

United States Senator Dr. Royal S. Copeland, former commissioner of health of New York City, said in a recent article: "Cabbage contains roughage necessary to proper intestinal action. It contains those elements which guard against scurvy. In the cabbage are the vitamins necessary to growth, and many valuable minerals. Per-

haps I need not suggest that cabbage should be a more popular vegetable, because it is apparent that it IS a popular vegetable. I do want to say that it deserves all the popularity it has, because it contains elements necessary to the growth and health of the human family."

Dr. A. P. Sy, Professor of Chemistry at the University of Buffalo, and an original physiological and food chemist of high standing, is quoted as saying "I place cabbage at the head of the list of health giving vegetables."

### Rich in Vitamines

Dr. Harvey W. Wiley, Director of the Bureau of Foods, Sanitation and Health, conducted by *Good Housekeeping*, wrote in response to a letter of inquiry: "Cabbage is one of the vegetables which is found to be the richest in vitamins. It contains all three of the vitamins. I am, therefore, a great believer in the free and extensive use of cabbage, especially when it is raw.

"But after all, I think there is no form in which cabbage can be used to such an advantage as in sauerkraut. I wish, too, that the lovers of sauerkraut would eat it raw. It is much more wholesome that way, and I think it more palatable. All the vitamins which it contains are preserved in the raw state.

"The slight acidity of sauerkraut also safeguards against the destruction of the vitamins in cooking. It is a well established fact that vitamins resist high temperatures much better in an acid medium



than they do in a neutral or alkaline medium."

### Value of Lactic Acid

Sauerkraut gives us all the valuable properties of cabbage, and in a form which is not only more palatable, but more easily digested. It does more than this. The process of fermentation which it undergoes produces lactic acid, which is known to science as one of the most valuable prophylactics, and which renders sauerkraut not only more digestible, but also more valuable as a food.

It was the famous Metchnikoff of the Pasteur Institute of Paris who first drew the attention of the scientific world to the beneficial effects of lactic acid bacilli in keeping the intestinal tract free from disease-producing germs. His book on "The Prolongation of Life" emphasized the importance of these lactic ferments in the preservation of health.



"The Weaver of Minsk," famous in scientific annals.

Metchnikoff, in an article entitled, "The Utility of Lactic Microbes, With Explanations of Authors on Longevity," in *The Century Magazine*, cited the case of a man who reached the age of one hundred and three years, and was relatively well preserved. He was a weaver who had always led a sober and thrifty life, with only one passion—he adored sauerkraut and ate it in great quantities, oftenest raw. And Metchnikoff wrote:

"Now this article and food contains any quantity of lactic microbes in the shape of a bacillus smaller than the Bulgarian yahourt bacillus. From all that we know of the beneficial part played by lactic ferments, it is not rash to assign to the sauerkraut a certain importance in combating the evils of the intestinal flora. *On the whole, it is becoming more and more evident that lactic acid ferments should enter largely into human food as well as into the therapeutic treatment of a great number of diseases.*"

### An Intestinal Disinfectant

The celebrated Dr. Arnold Lorand of Carlsbad, in his book, "Health Through Rational Diet," a standard work on food values, says under the heading, "The Advantages of Sauerkraut:"

"It has further the advantage due to its lactic acid of exerting a kind of disinfecting process in the intestine. In many cases of intestinal catarrh, especially when large quantities of decomposition products are present, sauerkraut may have a favorable action, and I have several times observed very good results following its use.

"It might also be added that the pleasant sour taste has a stimulating effect upon the appetite. This applies to cases in which the loss of appetite is due to such influences as depressed spirits, overwork, etc., in which cases, also, no gastric juice is secreted. Here the pleasantly piquant taste of sauerkraut may have a beneficial effect, and in several such cases I have had good results when one to two tablespoonfuls were taken at the beginning of a meal.

"In order, however, that these beneficial effects may follow, care should be taken not to throw away all of the juice and then serve the sauerkraut quite dry, as is unfortunately frequently the case in restaurants and even in private homes. In this way the useful lactic acid content is diminished.

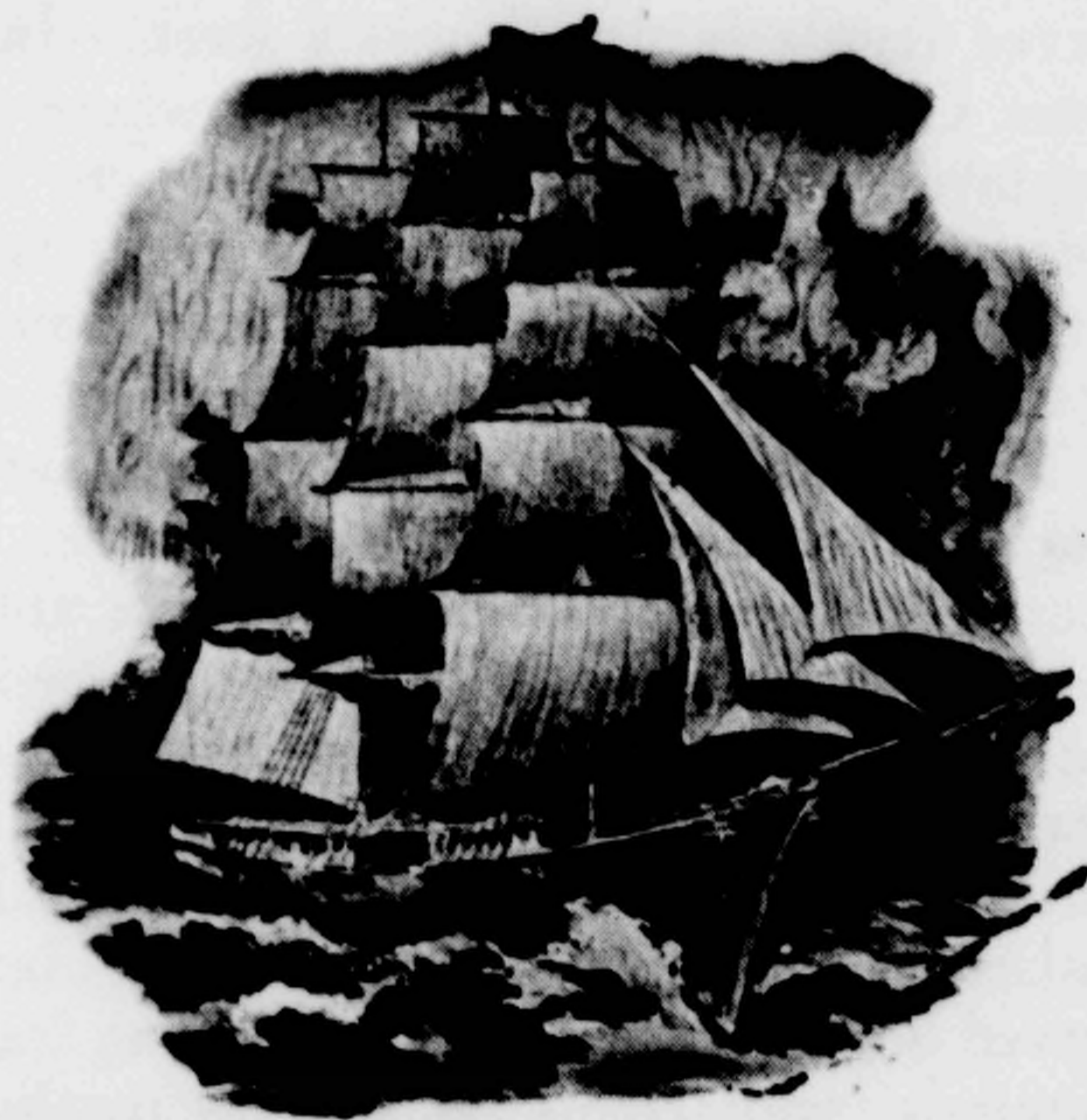
"This juice also has a very refreshing and pleasant taste. I found that when during the hot summer days I had no appetite, I could stimulate it by taking a little of this juice."

When it's "too hot to eat," a generous bowl of raw sauerkraut, surrounded by cracked ice, provides a delicious refreshing meal. The piquant flavor of the crisp and succulent sauerkraut delights the palate. And the natural lactic acid cleanses and disinfects the intestinal tract from impurities and toxins. This is the natural way to keep cool—more effective than drinking iced drinks.

## Indorsed by Famous Dietist

Dr. John Harvey Kellogg, superintendent of the famous Battle Creek Sanitarium, and one of the foremost authorities on foods and health, says in his book, "The New Dietetics—What to Eat and How:" "Sauerkraut deserves a larger place in the national bill of fare. The cabbage is a valuable source of iron, vegetable salts, and vitamins. In addition, it is a valuable means of giving the alimentary mass the necessary bulk to encourage peristaltic action. When properly made, sauerkraut is a most wholesome foodstuff."

Dr. William S. Sadler, of the Chicago Institute of Research and Diagnosis, in an address delivered at Winona Lake (Ind.) Assembly, said: "Sauerkraut is a valuable food because of its resemblance to buttermilk, in that its tendency would be to pre-



Sailors on long cruises eat sauerkraut to keep in condition

vent the growth of the harmful bacteria in the intestines which are sometimes responsible for auto-intoxication."

Louis Pasteur, the famous French scientist, declared sauerkraut to be one of the most useful and healthful vegetable dishes on earth.

Dr. Brokaw of St. Louis used to say: "Spinach may be the broom of the stomach, but sauerkraut is the vacuum cleaner."

For many years, sailors have eaten sauerkraut as a preventive of scurvy. It was Captain Cook who discovered its anti-scorbutic properties in 1776 and it is still used on long cruises to keep the sailors in condition.

### **An Efficiency Food**

In the cafeteria maintained by one of the largest banking institutions in the United States, where every day one thousand employes eat lunch, sauerkraut is served regularly three times a week. In a great Chicago mail order house, where all employes, from the president down to the messenger boys, eat lunch in a great cafeteria serving 7500 to 8500 a day, sauerkraut is on the menu the year 'round.

Thousands of business institutions, large and small, maintain such cafeterias, in charge of experts who select foods not alone for their appetizing qualities but also with careful consideration of their nutritive and health values. And in many of these cafeterias sauerkraut is one of the most popular dishes on the menu. It is also regularly served in hotels, restaurants, dining cars, hospitals, sanitariums, as well as in thousands of American homes. *Sauerkraut is becoming a national dish.*

### **Value in Cases of Diabetes**

Even more surprising are the statements of medical authorities that sauerkraut and sauerkraut juice are of great value as a food for those suffering from diabetes. Dr. Arnold Lorand, previously quoted, says: "For diabetics the cabbage family are excellent vegetables."

In no less an authority than Ander's "Practice of Medicine" sauerkraut is actually given first place in the vegetable diet for diabetes.

At the Augustana Hospital in Chicago Dr. Edward Ochsner has given sauerkraut and sauerkraut juice some very interesting tests in cases of diabetes.

The late Dr. Ida M. Sanborn, of Chicago, was a firm believer in Sauerkraut. She might almost be called an American pioneer among professional devotees to this wonderful food. For nineteen years and more, she prescribed Sauerkraut and Sauerkraut juice for her patients suffering from stomach or liver trouble. "And I have cured patients in many states of the union," was the boast she was proud to make.

Scientific reports of Germany, France, Sweden, Denmark, Russia and England abound with references to the value of sauerkraut as a food and as a prophylactic and therapeutic agent.

When the juice of raw sauerkraut is taken as an appetizer or as a therapeutic agent in cases of diabetes or of excess uric acid, one or two tablespoonfuls are usually taken before meals and upon retiring. Sauerkraut juice has a delicious flavor, especially when iced, and thousands of people

are today taking it as a corrective and health conditioner in their daily regimen.

### **Energy Value of Sauerkraut**

The superiority of sauerkraut in energy value over many important vegetables and over bouillon, beef soup and chicken soup, is shown in a table of values in a bulletin entitled "The Chemical Composition of American Food Materials," by W. O. Atwater and C. D. Woods, issued by the Office of Experiment Stations, U. S. Department of Agriculture.

### **Modern Methods Increase Value**

Sauerkraut as made today by the members of the National Kraut Packers' Association, in modern sanitary factories, is far superior to that made by old-fashioned methods at home. Only the choicest cabbages are used, and they are finely cut with absolute uniformity by specially constructed machines. This insures even and uniform fermentation. The correct proportions of salt and of cabbage are scientifically maintained and the temperature is regulated. The most scrupulous cleanliness is observed throughout the entire process of manufacture and a uniformly high grade product is insured.

Sauerkraut, at its best, should have a normal acid flavor, indicative of proper fermentation. It must never be bitter, sweet, or rancid.

The color should be light straw or golden; neither too white nor dark yellow; free from black or brown spots.

It should be fairly firm in texture, without being tough, and it must never be mushy.

**NOTE:** The "normal acid" mentioned above is the health-giving lactic ferment formed by the natural fermentation of cabbage. No vinegar, or any chemical, or artificial acids are used in making sauerkraut.

### **May be Bought in Cans or in Bulk**

Sauerkraut is placed on the market both in cans and in bulk and may be purchased at grocery stores, meat markets and delicatessen stores. It is equally excellent for all food and health purposes, whether in bulk or in cans, and recent scientific tests have proved that it is preserved perfectly



**Give him a welcome surprise for dinner—  
Sauerkraut**

in the can. This is especially true because of the fermenting process through which sauerkraut passes in the making and also because of the saline character of the juice, which is a most effective preservative.

Thus we see, on the testimony of the highest scientific authorities, that sauerkraut is a wholesome and nourishing food, rich in vitamins; that, because of its lactic ferments, it is of great value as an intestinal disinfectant, as a natural conditioner and regulator, as an appetizer, and even as a corrective and preventive of serious ailments.

And so, in the words of a recent writer, "If the truth about sauerkraut were once realized, and the general public were once informed of the truly scientific benefits of sauerkraut, it would do more for the health of the people, to keep them in condition, pink cheeked, bright eyed and with keen appetite and increased capacity for other dishes on the menu, than any other one thing I know of."

## THE NATIONAL KRAUT PACKERS' ASSOCIATION



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## NEW AND TESTED RECIPES



These recipes will help you to answer the daily question: "What shall I have for dinner?"

### SAUERKRAUT LUNCHEON CANAPES OR RELISHES

#### Sauerkraut Luncheon Canapé

½ cup cooked salad dressing	2 tablespoons finely chopped chives or onion
2 cups sauerkraut	2 tablespoons finely chopped green pepper
2 tablespoons Galatine (1 envelope sparkling Gel-	Stale bread
½ cup cold water	Peeled tomatoes

**NOTE:** All measurements are level. The juice or liquid of the sauerkraut is used in all recipes. The juice and liquid are packed SOLID in measuring cup when measured. No vinegar is used in connection with sauerkraut—always lemon juice—to increase and not destroy the food value. Sauerkraut is considered "raw" just as it comes from either the can or the keg.

Soften gelatine in the cold water and dissolve by standing over hot water. Add salad dressing, sauerkraut, chives or onions, and green pepper. Mold in tiny cups.

Toast thin slices of stale bread, cut in square or in fancy shapes, spread with melted butter and place on this a thin slice of peeled tomato. Unmold sauerkraut-gelatine mixture, cut in thin slices, and top the tomato. Serve as a first course at a luncheon.

### Sauerkraut Olive Relish in Green Peppers.

2 cups sauerkraut	pimentos (sliced in rings)
1 package lemon Jell-O	$\frac{1}{8}$ teaspoon salt
1 cup boiling water	6 green peppers
4 tablespoons lemon juice	Lettuce
1 cup finely chopped celery	French or Mayonnaise Dressing
12 olives stuffed with	

Dissolve a package of lemon Jell-O in one cup boiling water. When cool add sauerkraut, lemon juice, celery, olives, and salt. As it begins to thicken, pour into green peppers from which seeds and partitions have been removed. The green peppers serve as individual molds. When chilled, slice in thin rings and serve on thin pieces of toast with a dab of thick Mayonnaise dressing on top of each ring.

Serve as a first course at a luncheon or dinner.

## SAUERKRAUT SOUPS

### Sauerkraut Soup

2 cups sauerkraut	1 quart water
$\frac{1}{3}$ cup carrot	5 tablespoonfuls butter or other fat
$\frac{1}{3}$ cup turnip	1 teaspoon salt
$1\frac{1}{2}$ cups potatoes	$\frac{1}{4}$ teaspoon paprika
$\frac{1}{2}$ onion	

Wash and prepare vegetables by cutting them in small pieces. Mix vegetables (except potatoes) and cook 20 minutes in the butter or other fat. Add water and potatoes and boil one hour. Add sauerkraut. Beat with spoon or fork to break vegetables. Add salt and paprika. Serve hot with croutons (toasted cubes or bread).

### Cream of Sauerkraut Soup

4 cups hot white stock (chicken or veal) or water	1 stalk celery cut in inch pieces or
2 cups sauerkraut	$\frac{1}{2}$ teaspoon celery salt
$\frac{1}{4}$ cup butter or bacon fat	$\frac{1}{2}$ bay leaf
1 slice onion	$\frac{1}{4}$ cup flour
	2 cups milk
	$\frac{1}{4}$ teaspoon salt
	$\frac{1}{8}$ teaspoon paprika

Cook onion, celery, and bay leaf in butter five minutes, add flour, add hot stock or water; add milk, allow to boil; add sauerkraut; cook five minutes more. Season with salt and paprika. Strain; return one-half of the sauerkraut to the soup. (It is a little thick if all the sauerkraut is left in the soup. However, if one likes it so, the soup need not be strained at all.)

Serve with toasted bread sticks. This makes a most delicious unusual soup.



The president of one of America's largest food manufacturing companies wrote recently "You may be able to tell me something about the health qualities of sauerkraut which I hadn't even suspected, but you can't tell me anything about the pleasure it gives the palate, when properly cooked and served with spareribs—Oh Boy!"

## SAUERKRAUT SALADS

### Mayonnaise Dressing

This mayonnaise dressing is to be used in all the accompanying recipes wherever mayonnaise is indicated. Due to the fact that vinegar must not be used with sauerkraut all the salad dressings are made with lemon juice. The value of the lactic ferment in sauerkraut is spoiled if vinegar is used.

If you prefer to use your own salad dressing recipes just substitute lemon juice for vinegar when preparing them for use with sauerkraut.

### Mayonnaise to be used on all Sauerkraut Salads

1 egg	1 tablespoon lemon juice
$\frac{1}{2}$ teaspoon dry mustard	2 cups salad oil — olive, corn or cotton-seed
$\frac{1}{2}$ teaspoon salt	

Place the egg in a bowl, put in the dry ingredients and add the lemon juice. Beat these together a few seconds and add a small amount of salad oil. Beat until dressing begins to thicken. Then add the oil in larger amounts until the dressing is of the desired stiffness. This is a quickly and easily made Mayonnaise.

### French Dressing

This French Dressing is to be used in all accompanying recipes where French Dressing is indicated. Notice it is the regulation salad dressing with lemon juice as the acid instead of vinegar. You may use your own favorite French Dressing recipe if it contains lemon juice and not vinegar.

### French Dressing

1 teaspoon salt	$\frac{3}{4}$ cup salad oil (olive corn or cotton-seed oil)
$\frac{1}{2}$ teaspoon paprika	$\frac{1}{4}$ cup lemon juice

Mix dry ingredients, add lemon juice. Add oil and combine ingredients with egg beater. This dressing may be made in quantity and be kept in a bottle and by reshaking become thoroughly blended at each serving time.

### Cooked Salad Dressing

1 teaspoon salt	$1\frac{1}{2}$ tablespoons melted butter or salad oil
1 teaspoon mustard	$\frac{1}{2}$ cup milk
$\frac{1}{8}$ teaspoon paprika	3 tablespoons lemon juice
$1\frac{1}{2}$ tablespoons flour	
2 egg yolks	

Mix dry ingredients. Add yolks of eggs slightly beaten, butter or oil, milk and lemon juice, very slowly. Cook in double boiler over hot water until mixture thickens. If it curdles, place the boiler at once into a pan containing cold water and beat until smooth.

### Sauerkraut Cucumber Salad

1 cup sour cream whipped until stiff.	2 tablespoons lemon juice
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Add the lemon juice during the whipping. Season with salt. A dash of curry powder is good when it is served on sauerkraut. Sour whipped cream may be substituted for sweet cream in any cooked salad dressing recipe.

### Sour Cream Salad Dressing

$10\frac{1}{2}$ oz. size can tomato soup	2 tablespoons chopped onion
2 tablespoons Gelatine	$\frac{1}{8}$ teaspoon paprika
$\frac{1}{2}$ cup cold water	$\frac{1}{4}$ teaspoon salt
1 cucumber (sliced in thin rings)	2 hard cooked eggs
2 cups sauerkraut	Lettuce leaves

Soften gelatine in the half cup cold water ten minutes. Bring tomato soup to the boiling point and dissolve in it the softened gelatine. When cool, add sauerkraut, cucumber, onion, salt and paprika. Slice hard cooked eggs and put a slice in the bottom of small cups or molds and fill with the tomato-sauerkraut mixture. Chill. When ready to serve turn on lettuce leaves. Serve Mayonnaise dressing with this salad. This is a very good salad to serve with fish.

This sauerkraut cucumber jelly may also be molded in a thin sheet, cut in squares, spread with cream cheese and put together sandwich fashion and served on lettuce leaves with Mayonnaise dressing.

### Stuffed Tomato Sauerkraut Salad

6 small solid tomatoes	2 tablespoons lemon juice
4 cups sauerkraut	1 tablespoon sugar
6 tablespoons salad oil (olive, corn or cotton-seed oil)	$\frac{1}{8}$ teaspoon salt
	$\frac{1}{4}$ teaspoon paprika
	Lettuce

Peel the tomatoes, cut off stem end, remove core and seeds. Combine the salad oil, lemon juice, sugar, salt and paprika with an egg beater. Add the sauerkraut to the salad dress-



ing thus prepared. Fill the tomatoes with the mixture. Set each tomato on a lettuce leaf. This can be served as a separate salad course or as an accompaniment to a meat course.

### Sauerkraut All-Bran Salad (Johnson Recipe)

6 canned pears	1 cup sauerkraut
1 cup of celery	$\frac{1}{4}$ cup Kellogg's All-Bran Russian dressing

Cut pears, celery, and kraut in small pieces. Mix with Russian Dressing and add All-Bran. Serve on lettuce. Garnish with two strips of pimiento crossed, and small rosettes of cheese. All ingredients should be thoroughly chilled.

### Sauerkraut and Carrot Salad

2 cups sauerkraut	walnut halves
8 medium sized carrots	1 cup cream dressing
$\frac{1}{2}$ cup unbroken English	Lettuce

After washing and scraping carrots run through the coarse knife of food chopper. Combine with sauerkraut. Add cream dressing. Decorate with the walnut halves.

### Sauerkraut and Tuna Fish Salad

2 cups flaked tuna fish	1 tablespoon chopped ca- pers or a few stuffed olives
2 cups sauerkraut	
1 cup diced celery	
2 tablespoons onion juice	

Combine ingredients and serve with cooked dressing on lettuce leaves. Salmon or any cold cooked fish may be used instead of the tuna fish.

### Sauerkraut and Beet Salad

Cut six cold cooked beets into fine slices or small cubes and mix with them three cupfuls of sauerkraut. Put a large white onion through the fine knife of the food chopper and sprinkle over the top of the salad. Serve with either French dressing or mayonnaise.

### Kraut Crushed Pineapple Salad

NOTE. Sauerkraut makes an excellent salad when prepared with crushed pineapple, pear or such other fruits, served with or without mayonnaise or other like dressings.

## SAUERKRAUT AS GARNISH

### Sauerkraut Jelly

2 cups sauerkraut	Juice $\frac{1}{2}$ lemon
1 package lemon Jell-O	$\frac{1}{8}$ teaspoon salt
1 cup boiling water	$\frac{1}{8}$ teaspoon paprika

Dissolve a package of lemon Jell-O in one cup of boiling water. When cool add sauerkraut, lemon juice, salt and paprika. Fill individual molds or cups. Chill. This recipe will make six individual molds. At serving time remove from molds. Cut in any desired shapes and use as a garnish for salads or cold meats.

### SPARERIBS AND SAUERKRAUT (Hotel Prize Recipe)

First take a heavy bottomed copper sauce pan with a tightly fitting cover. Place in the bottom with the skin side up, some sugar cured ham rinds; then spread upon them some sliced onions. Place on this a layer of kraut seasoned, then a layer of spareribs, then kraut, and continue until the sauce pan is nicely filled. Add no water, but fasten the lid on as firmly as possible to avoid the escape of steam, thereby cooking the food in its own moisture. Cook for two and one-half hours.

### Sauerkraut with Ham

Procure sufficient sugar-cured ham (medium fat), boil for one hour until tender, put ham through food chopper (using coarse knife), season with salt and pepper, place in deep dish a layer of heated kraut, layer of ham, layer of kraut, etc., until dish is filled. Garnish with hard-cooked eggs or parsley and serve hot.

### SAUERKRAUT ROLL

Take 2 or 3 pounds of round steak cut  $\frac{3}{4}$ -inch thick. Sprinkle salt and pepper over it. Cover with thin slices of bacon. Place as much kraut on this as possible and roll up and fasten with skewers. Put in covered roasting pan with a pint of water and bake one hour in a moderate oven. Then thicken the liquid with flour. Garnish with lemon slices.

## Poultry and Game

Poultry and game can be greatly enhanced in its lusciousness by stuffing with previously cooked sauerkraut in place of the ordinary dressing.

### Escalloped or Baked Sauerkraut

Put a layer of kraut in bottom of baking dish, add layer fresh pork well seasoned with salt and pepper, another layer of kraut, etc., until filled, having layer of pork on top, add sufficient water to bake for one hour. Serve hot.

### Sauerkraut with Sausage

One can of kraut, one pound smoked sausage, place in alternate layers in baking dish, sprinkle with pepper, add 1 cup water, cover and bake 1½ hours in moderate oven.

### Sauerkraut with Meat and Dumplings

Cook four cups sauerkraut with meat, either fresh pork loin, ham or spareribs, until done. Just before serving add dumplings made as follows:

2 cups flour	½ teaspoon salt
4 teaspoons baking powder	2 teaspoons butter
	1 cup milk

Mix and sift dry ingredients. Work in butter with tips of fingers, add milk gradually. Drop by spoonfuls on top of meat and kraut. The dumplings should rest on the meat and kraut and should not settle into the liquid. This makes them heavy, so in case there is too much liquid remove before adding dumplings. Cover closely and cook 10 minutes without uncovering.

### Sauerkraut á la Red Star Inn

Set sauerkraut on stove in kettle with enough water to cover. Put in a ham bone or a piece of ham or bacon some lard and quite a few sliced onions, and let it cook about an hour. Add enough grated raw potatoes to thicken it a little. Some juniper berries and caraway seeds may be added while cooking it to enrich its flavor. When the hour is up put in the kraut and cook 20 to 30 minutes.

## SAUERKRAUT VEGETABLE DISHES

(Accessory to Meat Course)

### Spanish Onions with Sauerkraut

Peel six onions. Scoop out from the top a portion of the center. Parboil them for five minutes, and turn them upside down to drain. Fill them with the following mixture:

1 cup sauerkraut	The onion taken from the center (chopped fine)
½ cup soft bread crumbs	¼ teaspoon salt
½ cup left-over fish, meat or chicken (finely minced)	⅛ teaspoon paprika
	2 tablespoons melted butter

Fill the onions heaping full with the above mixture and sprinkle the tops with crumbs. Place them in a pan with an inch of water; cover and let cook in an oven for an hour, or until tender, but not so long as to lose shape. Take off the cover the last five minutes, so they will brown very slightly.

### Peppers Stuffed with Sauerkraut

Use six green sweet peppers of uniform size. Cut a piece off the stem end, or cut them into two lengthwise, and remove the seeds and partitions. Put them in boiling water for five minutes to parboil. Fill each one with a stuffing made as follows:

1 cup soft bread crumbs	2 slices onion (finely sliced)
1 cup sauerkraut	½ teaspoon paprika

Cover with bread crumbs and place in a baking dish with water, or better stock, half an inch deep, and bake in a moderate oven 30 minutes. Serve them in the same dish.

### Smothered Sauerkraut

4 cups sauerkraut	¼ teaspoon paprika
4 medium sized onions	½ cup water
4 tablespoons flour	¼ cup lemon juice
1 tablespoon syrup	2 tablespoons meat drippings or other fat
½ tablespoon mustard	

Slice onions very thin and add to sauerkraut. Add flour, mustard and paprika to fat, brown well. Add water and syrup and cook until thickened. Remove from fire and add lemon juice. Pour over sauerkraut and onions and let stand one-half hour before serving.

## Baked Tomatoes with Sauerkraut

Remove thin slices from the stem-ends of smooth, medium sized tomatoes. Take out the pulp, add an equal quantity of bread crumbs and an equal quantity of sauerkraut. Season with salt, pepper, and a few drops of onion juice, and refill the tomatoes with the mixture. Place stuffed tomatoes in a buttered pan, sprinkle each tomato with buttered crumbs, and bake 20 minutes in a hot oven.

## Egg Plant á la Sauerkraut

1 eggplant	$\frac{1}{8}$ teaspoon salt
1 cup sauerkraut	$\frac{1}{8}$ teaspoon pepper
$\frac{1}{2}$ cup bread crumbs	2 tablespoons fat
1 tablespoon onion	

Cook the egg plant in boiling water 15 minutes. Cut a slice from the top, remove the pulp carefully and to it add the sauerkraut, bread crumbs, onion, salt and pepper. Melt the fat, add the sauerkraut and bread crumb mixture, stir well, and refill the egg plant "shell." Bake in a hot oven 10 minutes.

## Escalloped Sauerkraut and Tomatoes

1 can tomatoes	Cracker or bread crumbs
4 cups sauerkraut	

Drain the liquid from the can of tomatoes and reserve liquid. Grease a baking dish. Cover the bottom of baking dish with a layer of the solid tomatoes. Sprinkle with salt and pepper and dots of butter. Cover with a layer of cracker or bread crumbs, then a layer of sauerkraut, then another layer of tomatoes, crumbs and sauerkraut and so on until the tomatoes and sauerkraut have all been used. Pour over all the tomato liquid and cover with buttered crumbs. Bake in a hot oven 20 minutes.

## SAUERKRAUT MAIN DISHES

### Sauerkraut Roast

2 cups sauerkraut	1 cup grated cheese
1 cup peanuts (or any other desired kind of nuts)	1 cup bread or cracker crumbs
1 onion	1 tablespoon salad oil or fat
1 cup tomato pulp or soup	Seasonings

Put nuts and onions through coarse knife of food chopper; combine with sauerkraut, tomato pulp, cheese, and crumbs. Season to taste with salt, pepper and sage or other poultry seasoning. Moisten with water or tomato pulp. Shape in loaf, bake 30 minutes. Serve with tomato sauce.

### Tomato Sauce

$1\frac{1}{2}$ cups tomato juice or soup	$\frac{1}{8}$ teaspoon paprika
2 tablespoons flour	1 slice onion
2 tablespoons butter or butter substitute	Sprig parsley
	$\frac{1}{4}$ teaspoon salt

Melt butter or substitute; add flour, and when brown add tomato and onion. Stir until mixture boils, then add seasonings. Serve hot.

### Sauerkraut Chop-Suey

$\frac{1}{8}$ cup rice	2 cups sauerkraut
$\frac{1}{2}$ cup tomato soup	1 cup cold cooked chicken, veal, or pork
1 cup stock, chicken, veal or other stock	Salt
3 tablespoons butter	Paprika

Cook rice in boiling salted water, drain. Melt butter in pan, add rice. Cook 3 minutes, then add tomato soup, sauerkraut, chicken or meat, and stock. Cook 5 minutes. Highly season with salt and paprika. Serve as the main course of the meal.

### Pimento Sauerkraut

1 cup rice	2 small onions (finely sliced)
2 cups boiling water	2 pimentos (finely sliced)
2 cups tomato juice or soup	1 teaspoon salt
2 cups sauerkraut	2 tablespoons butter

Mix all the ingredients together and bake in moderate oven  $1\frac{1}{2}$  hours.

### Sauerkraut Timbales

2 eggs	$\frac{1}{2}$ cup liquid (water or stock)
2 tablespoons fat	1 cup sauerkraut
1 teaspoon salt	$\frac{1}{8}$ cup bread crumbs
$\frac{1}{8}$ teaspoon pepper	
Few drops of onion juice	

Beat eggs, add seasonings, melted fat and liquid. Combine with sauerkraut and crumbs. Turn into greased cups, set in pan of hot water and bake until firm. Cooked oatmeal or other cooked cereal may be used instead of the crumbs.

## Sauerkraut Croustade

3 cups sauerkraut	1 onion (cut in fine slices)
2 tablespoons bacon fat	$\frac{3}{4}$ cup water
2 tablespoons flour	1 loaf bread
$\frac{1}{8}$ teaspoon salt	Butter (melted)
$\frac{1}{8}$ teaspoon paprika	2 hard cooked eggs

Put bacon fat in frying pan to heat. When hot add the sauerkraut. Cook three minutes, add the flour, salt and paprika, stir thoroughly, add the water and cook five minutes. Remove the crust from a small loaf of bread, hollow the center, leaving a shell of bread. Dip this shell in melted butter, dipping all sides of the loaf. This is called a croustade.

Fill buttered loaf with sauerkraut mixture. Place in a hot oven to brown. Garnish with the sliced hard-cooked eggs.

A very unusual dish may be served by using individual croustades. These are made by cutting thick slices of bread scooping out as much crumbs as possible, leaving little bread boxes. These are dipped in butter and filled with the mixture just as the big croustade is filled. Each person is served an individual croustade. The toasted bread is delicious eaten with the mixture.

## Baked Sauerkraut with Apple

3 cups sauerkraut	4 tablespoons brown sugar
2 apples	

Take a casserole or any baking vessel, grease the bottom with butter, put in layer of sauerkraut, add a layer of sliced unpeeled apple and sprinkle with two tablespoons brown sugar, then add another layer of sauerkraut, apple and sugar. Cover and bake in a moderate oven. Serve hot.

## Creamed Fried Sauerkraut and Onions

6 medium sized onions	3 tablespoons flour
2 cups sauerkraut	1 teaspoon salt
3 tablespoons fat (butter, bacon fat or drippings)	$\frac{1}{8}$ teaspoon pepper
	2 cups milk

Slice and fry the onions in fat. When light brown dredge with flour, stir well, and add milk and seasonings. Cook until thick, add sauerkraut and serve on French toast made by dipping bread in milk and egg and frying until light brown.

## Escalloped Sauerkraut with Potatoes and Peanuts

3 pints cold, sliced boiled potatoes	2 cups sauerkraut
1 cup chopped peanuts	2 cups bread crumbs
$1\frac{1}{2}$ cups sweet milk	$\frac{1}{4}$ teaspoon salt
	$\frac{1}{8}$ teaspoon paprika

Mix the nuts and crumbs together. Grease a baking dish. Put in baking dish first a layer of nuts and crumbs, then a layer of sauerkraut and then a layer of potatoes, repeat with alternate layers of nuts and crumbs, sauerkraut and potatoes. Finish with a layer of nuts and crumbs. Pour over all the milk in which the salt and paprika have been mixed. Bake slowly about one hour.

## Escalloped Sauerkraut with Cheese

2 tablespoons butter	$\frac{1}{8}$ teaspoon paprika
2 tablespoons flour	2 cups sauerkraut
2 cups milk	1 cup grated cheese
$\frac{1}{2}$ teaspoon salt	$\frac{1}{2}$ cup buttered crumbs

Make a white sauce by melting butter, adding flour and then milk. Allow to boil and then add seasoning. Spread a layer of half of the sauerkraut on the bottom of a buttered baking dish; cover it with half the white sauce, then add a layer of half the grated cheese. Make a second layer of sauerkraut. Sauce and cheese; cover the top with a layer of buttered crumbs and place in the oven. When the sauce bubbles through the crumbs it is done. Serve hot in the baking dish.

## Sauerkraut Cutlets

2 cups sauerkraut	$1\frac{1}{4}$ cups coarsely ground walnuts
$\frac{2}{3}$ cup bread crumbs	$\frac{1}{8}$ teaspoon salt
1 egg, well beaten	$\frac{1}{8}$ teaspoon paprika
$\frac{1}{2}$ tablespoon butter	

Heat sauerkraut. Beat the ingredients together while the sauerkraut is still hot. Let stand till cool, then shape into cutlets or flat cakes. Dip them quickly in milk, then in equal parts of fine dry bread crumbs and extra nutmeats, finely ground. Then fry in fat or vegetable cooking oil. Serve with a white sauce containing a little minced green pepper.

## Sauerkraut Omelet

2 cups sauerkraut  
1/4 cup butter or other fat  
1/8 cup flour  
1 teaspoon salt  
1/8 teaspoon paprika  
3/4 cup liquid (milk, wa-  
ter, soup stock, veg-  
etable juice, or a mix-  
ture of two or more of  
these)  
4 eggs  
1 teaspoon lemon juice

Melt butter or fat, add the flour, and cook for about one minute. Add the milk, stirring constantly, and cook until the mixture is smooth and thick. Add the sauerkraut and egg yolks unbeaten. Beat the whites of the eggs stiff and fold them into the mixture. Add lemon juice; pour into a buttered omelet pan, cook in a slow oven for about 20 minutes; fold; serve immediately on a hot platter.

## Sauerkraut Pie

Use deep pan. Make a rich pie dough and roll thicker than for ordinary pie and large enough to lay in pan and extend far enough over side of pan to fold over top. Put in kraut. Cut a slice or two of bacon in small squares and fry out to a light brown, then pour the bacon and grease over the kraut. Put a layer of thin sliced apple, cored and unpeeled, over the kraut, sprinkling a little brown sugar. Fold the dough over the entire top so as to completely cover, then beat yolk of egg and paint top of pie with it. Bake like any other pie. Serve hot.

## Sauerkraut and Navy Beans

One and one-half cups navy beans cooked until skins crack. Four cups kraut. Add 2 tablespoons bacon grease, cook from 1/2 hour to one hour; add beans and mix thoroughly. Heat few minutes longer after mixed.

## LATE SUPPER OR PARTY DISHES

### Tomato—Sauerkraut Club Sandwiches

Toast bread, one side only, butter the untoasted side; on bottom slice put slices of tomato, cover with mayonnaise, then with another slice of toast, untoasted side up. Cover this with a layer of raw sauerkraut and then mayonnaise. Cover with a slice of toast, toasted side up. Put a slice of tomato on top of each Club Sandwich, fasten on an olive with a toothpick. Serve cold. These are delicious for late suppers or Sunday night tea.

## Sauerkraut Tomato Rarebit

2 tablespoons butter  
2 tablespoons flour  
2 cups strained tomato  
or tomato soup  
1/4 teaspoon paprika  
1 cup grated cheese  
1 cup sauerkraut

Melt butter add flour and when brown add tomato. Stir until mixture boils, add seasonings. Put over hot water. A double boiler is excellent for making all rarebits, for cheese needs a low temperature. Beat in the grated cheese and continue beating until cheese is thoroughly melted. Stir in the sauerkraut and when thoroughly heated pour over triangles of hot toast. This is a good late-supper dish.

## Sauerkraut with Cold Meats

Sauerkraut is delicious served with cold meat, sliced ham, tongue, cold roast beef, cold lamb or cold pork, corned beef, dry sausage, etc. The kraut may be served cold or prepared as follows:

2 cups sauerkraut  
2 tablespoons butter  
2 tablespoons flour  
1 cup milk  
1 egg  
1/4 teaspoon salt  
1/8 teaspoon paprika

Melt butter; add flour and then milk. Bring mixture to boil and allow to boil 2 or 3 minutes. Add sauerkraut and seasonings. Beat egg until light and fluffy. Take mixture from fire. Stir in the beaten egg. Place the creamed sauerkraut in the center of a large platter and surround with the slices of cold meat. Garnish with little pickles and olives.

## Sauerkraut à la King

1 1/2 tablespoons dripping  
or chicken fat  
1 tablespoon corn starch  
1/2 cup water or vegetable  
stock  
1/2 cup milk  
1/4 cup cream  
1/2 teaspoon salt  
2 tablespoons butter  
2 cups sauerkraut  
1 cup cooked chicken or  
veal cut in small pieces  
1/2 cup mushrooms  
1/4 cup canned pimentos,  
cut in strip  
1 egg yolk

Melt dripping, or chicken fat; add corn-starch and stir until well blended; then pour on gradually, while stirring constantly, water or the water in which vegetables or rice have been cooked, milk and cream. Allow to boil, add salt. Saute mushrooms in the two table-  
spoons of butter and add to sauce; add chicken and pimentos; allow to boil again and add egg yolk slightly beaten. Serve on toast.

THE following firms are Members of the Association and market First Quality Sauerkraut under their own private brands indicated below:

FIRM	BRAND
<b>Bellevue Kraut &amp; Pickling Co.</b> Bellevue, Ohio	<i>Shur-good</i>
<b>Canandaigua Kraut Co., Inc.</b> Canandaigua, N. Y.	<i>Council Rock</i>
<b>Castle Co.</b> Lyons, N. Y.	<i>Castle and Pirate</i>
<b>Celina Kraut &amp; Pickle Co.</b> Celina, Ohio	<i>(bulk)</i>
<b>Clyde Kraut Co.</b> Clyde, Ohio	<i>Silver Fleece</i>
<b>Empire State Pickling Co.</b> Phelps, N. Y.	<i>Silver Floss</i>
<b>L. C. Forman &amp; Sons Co., Inc.</b> Pittsford, N. Y.	<i>Forman's</i>
<b>Fox Valley Canning Co.</b> Hortonville, Wis.	<i>Silver Fox</i>
<b>Fremont Canning Co.</b> Fremont, Mich.	<i>Fremont</i>
<b>Fremont Kraut Co.</b> Pittsburgh, Pa.	<i>Snow Floss</i>
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<b>Meeters, Inc.</b> Lansing, Illinois	<i>Meeter's</i>
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<b>Saginaw Kraut Co.</b> Saginaw, Mich.	<i>Saginaw</i>
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<b>Slessman &amp; Sons</b> Clyde, Ohio	<i>Slessman</i>
<b>Sycamore Preserve Works</b> Sycamore, Ill.	<i>Crescent</i>
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<b>Victor Preserving Co.</b> Ontario, N. Y.	<i>Paramount</i>
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## BALANCED BILLS OF FARE.

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IN the following pages an attempt has been made to present a series of bills of fare for meal orders which may be helpful to those who desire to adopt a dietary in strict accordance with scientific principles. These bills of fare are arranged not only with reference to the proper combinations of food substances in relation to digestion, but also in relation to the food elements which they supply, care being taken so to adjust each meal order that the several food elements shall be combined in the right proportion to meet the requirements of the body.

**The Daily Ration.**—The average working individual requires about six hundred grams, or twenty ounces, of water-free food daily. The several food elements are required in the following proportion: Proteids (albumen, gluten, and allied substances), seven parts; fats, three parts; carbohydrates (starch, sugar, and dextrin), forty parts: or of proteids, 2.8 ounces; fats, 1.2 ounces; carbohydrates, 16 ounces.

The quantities have been so arranged as to make the total of each bill of fare to be either one half or one fourth of the daily ration. If two meals only are taken, one half the required amount will be consumed at each meal. If three meals are taken, the principal meal, constituting one-half ration, should be taken at midday, the morning and evening meals consisting of food easily di-

gestible, and one fourth the daily ration in quantity. If four meals are taken, one fourth the daily ration is taken at each meal, the interval between meals being about equally divided, and the food substances taken should be such as may be quickly digested.

The most convenient and satisfactory hours, if two meals are taken, are 8 A. M. and 3 P. M., allowing seven hours between meals. If three meals are taken, 7 A. M., 12:30 P. M., and 6 P. M., are suitable hours, the 12:30 meal being the principal one. If four meals are taken, 7, 11, 3, and 7 are perhaps the most suitable, but 8, 12, 3, and 7 may be employed, if care is taken to make the 8 o'clock and 3 o'clock meals the principal ones, taking at 12 M. and 7 P. M. only those articles that are very quickly digested, such as fresh or sweet fruits, rice, kumyss, buttermilk, grape-juice, and similar foods. In some instances the whole bill of fare consists of but one or two articles. These are of course designed for use in special cases,—those requiring the greatest possible simplicity in diet.

A number of bills of fare are added, which are arranged with special reference to an excess or a deficiency of certain elements. These are intended for use in the dietetic treatment of obesity, diabetes, emaciation, and other morbid conditions, as indicated. An endless variety of combinations can be made from the accompanying list of food substances, and the list may be enlarged at will by the necessary chemical examination of other substances in the condition in which they are served at table.

It is understood, of course, that the substances referred to in the balanced bills of fare are pre-

pared according to definite formulas, which must be accurately followed. These formulas, or recipes, may be obtained by any one who desires them, by addressing the Modern Medicine Pub. Co., Battle Creek, Mich.

It will be noted that all flesh foods are excluded from the bills of fare. One purpose in their preparation has been to show that flesh foods are wholly unnecessary for a well-balanced and thoroughly sufficient bill of fare, provided the bill of fare includes all classes of vegetable foods, and nuts.

The nut preparations referred to under the names of nuttolene, maltol, nut butter, almond cream, malted nuts, and ambrosia present this class of food substances in a form easily digestible. Some one or more of these products—probably all of them—can be readily digested even by persons whose digestion is so feeble that almost all other food substances are rejected. Persons whose digestive functions are very vigorous may be able to digest nuts without any special preparation other than thorough mastication, but when they are used in the raw state, a very considerable portion of the nutritive elements is lost, being discharged without being digested; whereas in the prepared state in which nuts are presented in the various nut products referred to, this class of highly nutritious food substances is not only very quickly, but also completely digested and assimilated.



**Table Showing the Amount of the Several Classes of Food Elements in Given Weights of Various Food Substances as Usually Eaten, and the Number of Calories.**

[By means of the table given below it will be found quite easy to arrange balanced bills of fare by selecting such combinations or articles as will give, with the proper bulk, the necessary proteids (2.8 oz.), fats (1.2 oz.), carbohydrates (16 oz.), calories, or heat units (2,542). \*]

FOODS	Weight Oz.	MEASURE	PER CENT. OF			Calories in one oz.
			Proteids	Fats	Carbo.	
Bananas.....	2.	1 peeled	1.4	1.4	29.8	39
Oranges.....	2.	1 peeled	1.31	.....	11.	14
Lemons.....	2.5	1 peeled	1.	.9	8.3	14
Berries, stewed....	9.8	.5 pt.	1.4	.....	12.4	16
Prunes, stewed....	9.2	.5 pt.	.5	.....	14.7	17
Raisins, stewed....	9.2	.5 pt.	1.8	1.9	23.6	34
Apple sauce.....	9.5	.5 pt.	.18	.24	9.4	12
Peaches, canned....	9.2	.5 pt.	.7	.....	12.5	15
Fruit-juice....	8.8	.5 pt.	.7	.74	9.2	13
Sauce for grains....	8.5	.5 pt.	.7	.7	9.8	13
Apples, fresh.....	13.	{ 2 large or 4 small	.4	.....	12.	14
Grapes, fresh.....	5.	1 av. bunch	.6	.....	16.3	19
Peaches, fresh.....	3.	{ 1 peeled and pitted,	.7	.....	12.5	15
Apricot, canned....	9.5	.5 pt.	.5	.....	11.	13
Grape pulp.....	.....	.....	2.	.2	21.	32
Blackberry, can'd,	9.2	.5 pt.	.5	.....	5.5	7
Cherry, canned....	9.2	.5 pt.	.7	.....	12.	15
Pear, ".....	9.2	.5 pt.	.4	.....	11.5	14
Strawberry, can'd,	9.2	.5 pt.	1.1	.5	6.8	9
Whortleb'y, ".....	9.2	.5 pt.	.8	.....	5.9	8
Melon.....	.....	.....	1.	.3	2.2	5
Plum.....	.....	.....	.4	.....	8.2	10
Fig.....	.....	.....	4.	.....	49.8	62
Tomato.....	8.	1 medium	1.6	.3	2.5	5
Apple, baked.....	5.5	1 large	.18	.24	9.4	12
Rice, steamed.....	5.75	.5 pt.	3.	.16	31.4	40
Oatmeal.....	.....	.5 pt.	6.4	3.9	29.7	53
Crystal wheat.....	7.	.5 pt.	5.7	3.	29.5	49
Gluten mush.....	8.25	.5 pt.	12.	.6	22.	44
Graham mush.....	7.	.5 pt.	5.8	.9	35.8	52
Wheatose.....	7.	.5 pt.	5.7	.8	29.5	44
Rice with nuttose.	6.	.5 pt.	4.2	1.3	32.1	46
Macaroni.....	6.5	.5 pt.	10.	2.	75.	104

\* For further information upon this subject see paper by the author entitled "The Daily Ration."

**TABLE. — Continued.**

FOODS	Weight oz.	MEASURE	PER CENT. OF			Calories in one oz.
			Proteids	Fats	Carbo.	
Granola.....	4.25	.5 pt.	15.	3.	75.	114
Granose.....	2.75	4	15.4	2.3	79.1	117
Zwieback.....	2.2	2 pieces,	13.6	2.	70.	104
Graham crackers..	3.	6	9.8	13.6	70.	128
W. W. Wafers.....	2.5	6	9.8	13.6	70.	128
Beaten biscuit....	2.25	6	11.7	1.2	80.	110
Sticks.....	2.	12	11.7	1.2	80.	110
Rolls.....	4.	6	11.7	1.2	80.	110
Passover bread....	3.75	12	11.7	1.2	80.	110
Graham bread....	1.	1 piece	9.5	1.4	53.3	80
W. W. bread.....	1.	1 piece	9.8	1.4	50.7	75
W. bread.....	1.	1 piece	8.8	1.7	56.3	81
Nut-gravy toast...	6.	1 piece	6.8	1.	35.	52
Prune toast.....	6.	1 piece	6.8	1.	35.	52
Berry toast.....	6.	1 piece	6.8	1.	35.	52
Cream toast.....	6.	1 piece	6.8	1.	35.	52
Nuttose roast.....	6.	.5 pt.	4.3	1.9	12.5	25
Nutt'se and tomato	8.75	.5 pt.	4.3	1.9	12.5	25
Potato, mashed....	7.75	.5 pt.	3.2	.15	27.5	36
Vegetables, fresh..	8.	.5 pt.	1.6	.3	4.	8
Tomato, stewed...	8.	.5 pt.	.8	.15	1.25	3
Potato, baked.....	4.	1 medium	3.2	.15	27.5	36
Nut gravy.....	9.	.5 pt.	.....	.....	.....	.....
Soup.....	8.5	.5 pt.	.8	.2	1.	3
Sugar.....	7.	.5 pt.	.....	.....	97.8	111
Beans, boiled.....	8.75	.5 pt.	.....	.....	.....	.....
Cream.....	8.5	.5 pt.	2.7	26.7	2.8	75
Milk.....	8.5	.5 pt.	3.6	4	4.7	21
Egg.....	1.5	1	14.	10.5	.....	47
Ster. butter.....	.....	.....	1.	85.	.....	218
Kumyss.....	8.5	.5 pt.	3.7	3.6	4.7	20
Cottage cheese....	.....	.....	3.6	3.7	6.	20
Malted nuts.....	.....	.....	23.	20.4	49.3	140
Almond cream....	.....	.....	2.7	26.7	2.8	75
Nut butter.....	8.75	.5 pt.	16.4	26.4	9.5	101
Bromose.....	1.	2 cakes	19.6	24.	39.4	135
Maltol.....	9.	.5 pt.	.....	20.	75.	136
Nuttose.....	3.	.....	30.	30.	18.	139
Nuttolene.....	3.	.....	30.	30.	18.	139
Nut meal.....	3.75	.5 pt.	28.3	46.2	1.8	161
Stewed nuttolene..	9.	.5 pt.	.....	.....	.....	.....
Beefsteak.....	.....	.....	19.3	3.6	.0	37

# MENUS.

## FRUIT DIET.

ONE-FOURTH RATION.—635 FOOD UNITS.

	Proteids	Fats	Carbohydrates	Total
Ounces.....	.7	.3	4	5
Food units. ...	100	82	450	635

FOODS	Weight OZ.	MEASURE	CALORIES OR FOOD UNITS
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### Required Amount of Proteids, Carbohydrates in Excess.

1 Grapes .....	23	1½ lbs.	Proteids, 51
Apples .....	15	2½	Fats, 00
Peaches. ....	23	15	Carbo., 960
	61		Total, 1,011

### Required Amount of Carbohydrates, Proteids Deficient.

2 Grapes .....	10 oz.	2 av. bunches	Proteids, 32
Apples .....	15	3 medium	Fats, 00
Peaches. ....	15	5	Carbo., 602
	40		Total, 634
3 Apples .....	26	4	Proteids, 38
Figs.....	4		Fats, 00
	30		Carbo., 594
			Total, 632
4 Grapes .....	32½	2 lbs.	Proteids, 28
			Fats, 00
			Carbo., 601
			Total, 629
5 Apples .....	45	7	Proteids, 25
			Fats, 00
			Carbo., 612
			Total, 637
6 Peaches.....	42	14	Proteids, 42
			Fats, 00
			Carbo., 602
			Total, 644
7 Prunes, stewed....	14		Proteids, 125
Oranges.....	5	3	Fats, 00
	23		Carbo., 506
			Total, 631

## FRUITS AND GRAINS.

ONE-HALF RATION.—1279 FOOD UNITS.

	Proteids	Fats	Carbohydrates	Total
Ounces.....	1.4	.6	8.	10
Food units.....	200	164	906	1,270

FOODS	Weight OZ.	MEASURE	CALORIES OR FOOD UNITS
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Raisins, stewed....	4	¼ pt.	Proteids, 202
8 Apples, baked.....	4	1	Fats, 82
Grape-juice.....	4	¼ pt.	Carbo., 999
Granose biscuit....	9	13	Total, 1,283
	21		

Peaches, canned....	8	½ pt.	Proteids, 200
9 Crystal wheat.....	6	½ pt.	Fats, 81
Sticks .....	2	12	Carbo., 998
Granose biscuit....	5	7	Total, 1,279
	22		

Granose biscuit....	9	13	Proteids, 204
10 Peaches.....	4	1	Fats, 55
Grapes .....	4	1 bunch	Carbo., 981
Apple, baked.....	4	1	Total, 1,240
	21		

Granose biscuit....	9	13	Proteids, 226
11 Whortleberry.....	26	1 ⅓ pt.	Fats, 53
	35		Carbo., 981
			Total, 1,260

Fruit-juice.....	18	1 pt.	Proteids, 208
12 Granola.....	9	1 pt.	Fats, 103
	27		Carbo., 953
			Total, 1,264

## GRAINS AND NUTS.

ONE-HALF RATION.—1270 FOOD UNITS.

FOODS	Weight Oz.	MEASURE	CALORIES OR FOOD UNITS	
<b>13</b> Granose biscuit....	8½	12	Proteids,	186
Maltol .....	2		Fats,	152
	10½		Carbo.,	932
			Total,	1,270
<b>14</b> Granola .....	7	1½ pt.	Proteids,	172
Almond cream....	6	¾ pt.	Fats,	462
	13		Carbo.,	614
			Total,	1,248
<b>15</b> Macaroni.....	6	⅓ pt.	Proteids,	210
Nuttolene .....	1		Fats,	95
	7		Carbo.,	984
			Total,	1,289

## FRUITS, GRAINS, AND NUTS.

ONE-HALF RATION.—1270 FOOD UNITS.

FOODS	Weight Oz.	MEASURE	CALORIES OR FOOD UNITS	
<b>16</b> Berry toast.....	8	1	Proteids,	203
Gluten mush .....	5	⅓ pt.	Fats,	193
Maltol.....	3	⅓ pt.	Carbo.,	668
Granose .....	2	3½		
	18		Total,	1,262
<b>17</b> Nuttolene .....	2½		Proteids,	215
W. W. Wafers....	6	14	Fats,	400
	10½		Carbo.,	659
			Total,	1,274
<b>18</b> Rice, browned....	6	½ pt.	Proteids,	227
Pear sauce.....	6	⅓ pt.	Fats,	120
Nuttolene .....	1		Carbo.,	947
Granose biscuit...	7	10		
	20		Total,	1,294

## FRUITS, GRAINS, AND NUTS.—Continued.

FOODS	Weight Oz.	MEASURE	CALORIES OR FOOD UNITS	
<b>19</b> Crystal wheat ....	6	1 pt.	Proteids,	255
Nuttolene .....	2		Fats,	228
Granose biscuit....	5	7	Carbo.,	774
Berries.....	6	½ pint		
	19		Total,	1,257
<b>20</b> Peaches, fresh....	5	1	Proteids,	178
Zwieback .....	9	9 slices	Fats,	148
Maltol .....	2		Carbo.,	950
	16		Total,	1,276
<b>21</b> Beaten biscuit....	4	11	Proteids,	200
Plums, canned....	10	½ pt.	Fats,	280
Nuttolene.....	3		Carbo.,	730
Maltol.....	2½			
	19½		Total,	1,310
<b>22</b> Grapes.....	12	2 large bunches	Proteids,	212
Malted nuts .....	1½		Fats,	119
Granola .....	5	½ pt.	Carbo.,	793
	20½		Total,	1,124
<b>23</b> Peaches, stewed..	12	¾ pt.	Proteids,	210
Malted nuts .....	3	½ pt.	Fats,	190
Granola .....	5	½ pt.	Carbo.,	793
	20		Total,	1,193
<b>24</b> Graham bread....	8	8 slices.	Proteids,	208
Nut butter.....	2		Fats,	192
Cherries.....	16	1 pt.	Carbo.,	900
Berries .....	8	½ pt.		
Granose biscuit...	1	3 split.	Total,	1,390
	35			
<b>25</b> Melon .....	1	small piece.	Proteids,	233
Wheatose .....	8	½ pt.	Fats,	117
Malted nuts.....	1½		Carbo.,	900
Sticks.....	6	30		
	16½		Total,	1,349

**FRUITS, GRAINS, AND NUTS.—Continued.**

	FOODS	Weight Oz.	MEASURE	CALORIES OR FOOD UNITS	
26	Nuttose & tomato	8	½ pt.	Proteids,	375
	Apples .....	6	1 small.	Fats,	274
	Nuttolene .....	3		Carbo.,	340
	Granose biscuit..	1	1½	<b>Total,</b>	<b>995</b>
		18			
27	Rice, steamed....	8	¾ pt.	Proteids,	214
	Nuttolene .....	2		Fats,	180
	Granose biscuit...	4	6	Carbo.,	880
	Apples.....	14	2	<b>Total,</b>	<b>1,274</b>
		28			
28	Grapes, fresh....	8	1 large bunch	Proteids,	214
	Malted nuts .....	2		Fats,	158
	Granola .....	7	⅔ pt.	Carbo.,	855
			17	<b>Total,</b>	<b>1,227</b>
29	Rice, steamed....	8		Proteids,	198
	Nuttose roast....	5	⅓ pt.	Fats,	164
	Almond cream...	2		Carbo.,	888
	Zwieback.....	6	6 pieces.	<b>Total,</b>	<b>1,280</b>
	Prunes, stewed...	3			
		24			
30	Apples, fresh ....	20	4	Proteids,	198
	Granose biscuit....	6	8½	Fats,	198
	Bromose .....	2	4 cakes	Carbo.,	900
		28	<b>Total,</b>	<b>1,296</b>	
31	Granose biscuit..	6	8½	Proteids,	261
	Ambrosia or } ..	4		Fats,	243
	Malted nuts }	—		Carbo.,	762
		10	<b>Total,</b>	<b>1,266</b>	
32	Zwieback.....	7	6⅓ pieces.	Proteids,	135
	Maltol .....	4		Fats,	240
		11		Carbo.,	895
			<b>Total,</b>	<b>1,270</b>	

**FRUITS, GRAINS, AND NUTS.—Continued.**

	FOODS	Weight Oz.	MEASURE	CALORIES OR FOOD UNITS	
33	Granose biscuit..	6	8½	Proteids,	138
	Apples .....	12	2	Fats,	188
	Maltol.....	3		Carbo.,	986
		21	<b>Total,</b>	<b>1,282</b>	
34	Granose biscuit..	5	7	Proteids,	246
	Malted nuts.....	4		Fats,	238
	Peaches .....	7	2	Carbo.,	771
		16	<b>Total,</b>	<b>1,255</b>	
35	Granose biscuit...	5	7	Proteid,	209
	Nuttolene.....	2		Fats,	321
	Maltol .....	2		Carbo.,	723
	Baked apples....	6	1	<b>Total,</b>	<b>1,253</b>
		15			
36	Granose biscuit...	3	4 ½	Proteids,	221
	Nuttose.....	2		Fats,	293
	Bromose.....	2	4 cakes	Carbo.,	732
	Grapes.....	18		<b>Total,</b>	<b>1,246</b>
		25			
37	Granose biscuit...	4	6	Proteids,	252
	Nuttolene.....	2		Fats,	275
	Malted nuts.....	2		Carbo.,	729
	Cherries.....	16		<b>Total,</b>	<b>1,256</b>
		24			
38	Bananas.....	13	6	Proteids,	268
	Nuttose.....	3		Fats,	290
	Granose biscuit...	2½	3 ½	Carbo.,	724
		18½	<b>Total,</b>	<b>1,222</b>	

## NUTS AND FRUITS.

ONE-HALF RATION.—1270 FOOD UNITS.

FOODS	Weight Oz.	MEASURE	CALORIES OR FOOD UNITS	
<b>39</b> Bananas.....	15	7 ½ pt.	Proteids,	203
Malted nuts.....	5		Fats,	283
	20		Carbo.,	674
			Total,	1,160
<hr/>				
Nuttolene.....	4½	4	Proteids,	203
<b>40</b> Peaches.....	12		Fats,	498
Maltol.....	3		Carbo.,	642
	19½		Total	1,343
<hr/>				
Ambrosia.....	6	2	Proteids,	201
<b>41</b> Apples.....	10		Fats,	414
Maltol.....	2		Carbo.,	642
	18		Total,	1,257
<hr/>				
Melon.....	10	2 bunches 2 ½	Proteids,	224
<b>42</b> Grapes.....	10		Fats,	389
Peaches.....	10		Carbo.,	687
Ambrosia.....	6		Total,	1,300
	36			
<hr/>				
Malted nuts.....	4	⅓ pt.	Proteids,	177
<b>43</b> Grape-juice.....	6		Fats,	232
Figs, steamed.....	12		Carbo.,	964
Apples.....	16		Total,	1,373
	38			
<hr/>				
Grape pulp.....	9	½ pt.	Proteids,	323
<b>44</b> Nuttolene.....	7		Fats,	582
	16	Carbo.,	357	
		Total,	1,262	

## MILK DIET.

ONE-HALF RATION.—1270 FOOD UNITS.

FOODS	Weight Oz.	MEASURE	CALORIES OR FOOD UNITS	
Kumyss.....	24	1 ½ pt.	Proteids,	196
Cottage cheese.....	7	⅓ pt.	Fats,	898
<b>45</b> Cream.....	9	½ pt.	Carbo.,	159
	40		Total,	1,253

## MILK AND EGG DIET.

ONE-HALF RATION.—1270 FOOD UNITS.

FOODS	Weight Oz.	MEASURE	CALORIES OR FOOD UNITS	
Cream toast.....	8	1 slice	Proteids,	200
Poached eggs.....	3	2	Fats,	707
<b>46</b> Cottage cheese.....	6½	⅓ pt.	Carbo.,	387
Cream.....	8	½ pt.	Total,	1,294
	25½			
<hr/>				
Granose biscuit....	4	6	Proteids,	210
<b>47</b> Peanuts.....	3	shelled	Fats,	683
Plums, canned....	4	¼ pt.	Carbo.,	381
	11		Total,	1,274
<hr/>				
Granose biscuit....	5	7	Proteids,	207
Almond nuts.....	3	meats	Fats,	432
<b>48</b> Pears.....	8		Carbo.,	587
	16		Total,	1,226
<hr/>				
Granose.....	4½	6	Proteids,	198
<b>49</b> Hazelnuts.....	3½	meats	Fats,	672
Prunes, canned....	8	½ pt.	Carbo.,	468
	16		Total,	1,338

## MISCELLANEOUS.

ONE-HALF RATION.—1270 FOOD UNITS.

FOODS	Weight Oz.	MEASURE	CALORIES OR FOOD UNITS	
Protose.....	7	½ lb.	Proteids,	345
Oatmeal.....	2½	⅙ pt.	Fats,	175
50 Bread, white.....	6	6 slices	Carbo.,	925
Potato.....	6	⅓ pt.		
Beans.....	1½			
Bananas.....	7	3	Total,	1,445
	30			
Eggs.....	3	2	Proteids,	197
51 Bread, white.....	5	5 slices	Fats,	526
Oatmeal.....	8	½ pt.	Carbo.,	590
Butter.....	2		Total,	1,313
	18			
Bread, white....	10	10 slices	Proteids,	199
52 Milk.....	8	½ pt.	Fats,	458
Cream.....	5	⅓ pt.	Carbo.,	633
	23		Total,	1,290
Kumyss.....	13	¾ pt.	Proteids,	296
53 Malted nuts.....	7		Fats,	484
	20		Carbo.,	461
			Total,	1,241
Passover bread....	4	13 pieces	Proteids,	200
54 Macaroni.....	4	¼ pt.	Fats,	162
Tomato.....	9	1	Carbo.,	818
Bromose.....	2		Total,	1,180
	19			
Beefsteak.....	8	½ lb.	Proteids,	364
55 Potato.....	10	⅓ pt.	Fats,	113
Bread, white.....	8	8 slices	Carbo.,	823
	26		Total,	1,300
String beans.....	8	½ pt.	Proteids,	205
Tomatoes.....	16	2 large	Fats,	409
56 Soup.....	12	¾ pt.	Carbo.,	619
Nuttose roast.....	7	½ pt.		
Graham bread.....	7	7 slices		
Sterilized butter...	1½		Total,	1,323
	51½			

## MISCELLANEOUS.—Continued.

FOOD	Weight Oz.	MEASURE	CALORIES OR FOOD UNITS	
Figs.....	10	50	Proteids,	209
Nuttose.....	3		Fats,	236
57 Tomato.....	8	1	Carbo.,	812
Apples.....	12	2	Total,	1,257
	33			
Nuttose.....	3		Proteids,	200
Tomato.....	16	2	Fats,	262
58 Baked apples.....	8	2	Carbo.,	811
Raisins, raw.....	10	½ pt.	Total,	1,273
	37			
Milk.....	17	1 pt.	Proteids,	306
Kumyss.....	17	1 pt.	Fats,	538
59 Malted nuts.....	4		Carbo.,	427
	38		Total,	1,261
Milk.....	9	½ pt.	Total,	1,271
60 Cream.....	7	⅓ pt.	Proteids,	205
Malted nuts.....	4		Fats,	777
	20		Carbo.,	294
			Total,	1,274
Green pea soup....	7	½ pt.	Proteids,	220
String beans.....	8	½ pt.	Fats,	350
61 W. W. Bread.....	8	8 pieces.	Carbo.,	658
Nut butter.....	3		Total,	1,228
	26			
Granose biscuit....	3	4½	Proteids,	205
Cream toast.....	8	1 piece.	Fats,	325
62 Cottage cheese....	4		Carbo.,	706
Baked beans.....	4		Total,	1,236
Sterilized butter...	2			
	21			

## MISCELLANEOUS. — Continued.

FOOD	Weight oz.	MEASURE	CALORIES OR FOOD UNITS
Zwieback.....	3	1½ pieces	Proteids, 204
Mashed potato....	8	½ pt.	Fats, 252
Wax beans.....	6	½ pt.	Carbo., 797
<b>63</b> Cream.....	3		<hr/>
Buttermilk.....	8.5	½ pt.	Total, 1,253
Graham bread....	4	4 pieces.	
	<hr/>		
	32.5		

### ONE-FOURTH RATION. — 635 FOOD UNITS.

<b>64</b> Granose biscuit ..	4	6 ½	Proteids, 100
Apples .....	22	3	Fats, 23
	<hr/>		Carbo., 658
	26		<hr/>
			Total, 781
<b>65</b> Granose biscuit..	4	6 ½	Proteids, 100
Cherries.....	13		Fats, 23
	<hr/>		Carbo., 536
	17		<hr/>
			Total, 659
<b>66</b> Granose biscuit..	4	6 ½	Proteids, 100
Grapes .....	15		Fats, 23
	<hr/>		Carbo., 636
	19		<hr/>
			Total, 759
<b>67</b> Granose biscuit..	3½	5	Proteids, 102
Apples .....	13	2	Fats, 48
Bananas.....	8	4	Carbo., 600
	<hr/>		<hr/>
	24½		Total, 750
<b>68</b> Bananas.....	9	4 ½	Proteids, 73
Bromose.....	2	4 cakes	Fats, 155
	<hr/>		Carbo., 393
	11		<hr/>
			Total, 621
<b>9</b> Banana pulp.....	7	3 ½	Proteids, 79
Bromose.....	2	4 cakes	Fats, 165
Oranges.....	8	4	Carbo., 398
	<hr/>		<hr/>
	17		Total, 642

# **THE F. J. KELLOGG FRAUDS**

**KELLOGG'S SAFE FAT REDUCER  
SANITONE WAFERS  
PROTONE  
RENGO**

*"Quackery affords large incomes to great numbers of vulgar impostors, and vast wealth to many clever adventurers, and seems to be, therefore, becoming more and more attractive to these classes."*

*—HENRY SEWILL in "Vanity Fair"*

**AMERICAN MEDICAL ASSOCIATION**

**535 NORTH DEARBORN STREET, CHICAGO**

1914

2006



# THE F. J. KELLOGG FRAUDS

Frank J. Kellogg finds quackery profitable. Starting, it is said, with practically nothing, Kellogg is now rated in the

millionaire class and is said to be a director of one of the Battle Creek banks. Kellogg has made his thousands selling anti-fat and anti-lean preparations. He has offices both at Battle Creek<sup>1</sup> and at Detroit, Mich. From Battle Creek, he sells "Kellogg's Safe Fat Reducer," and "Sanitone Wafers"; from Detroit, he conducts the Rengo Company and the Protone Company. Rengo is sold as an obesity cure; Protone is advertised as a flesh builder. As a sideline, the Protone and Rengo Companies both sell "Multo Fruto," a constipation cure. All of the Kellogg products are dispensed on the medical mail-order plan by methods that are typical of that class of fakes. Advertisements in newspapers and magazines bring to Kellogg the necessary mailing list; follow-up letters and advertising circulars do the rest.



Some typical Kellogg advertisements.

## Sanitone Wafers

Sanitone Wafers are advertised as the "greatest Nerve Vitalizer known" and the reader is advised that a "fifty cent trial package" will be sent free to anyone who applies for it. Those who write for the free sample receive a small box in which are a few orange-colored tablets, and by the same mail, a

larger box containing a "complete thirty days' treatment" for which \$5 is asked. If no further notice is taken of the Kel-

1. F. J. Kellogg now spends most of his time in Detroit, it is said, and has not lived in Battle Creek for some time. He, presumably, maintains the Battle Creek address for selling some of his frauds in order that he may trade on the reputation of that town. It is probable, also, that Kellogg wishes to make capital out of the fact that there is a well-known and reputable physician in Battle Creek having the same name—although different initials—as himself. F. J. Kellogg doubtless hopes that the confusion of names and the reputation of Battle Creek will result in giving him and his disreputable business an air of respectability.

logg concern, the unwilling recipient of the \$5 "treatment" is bombarded with a series of follow-up letters, each succeeding letter being more insistent than its predecessor in urging that the money be sent for the treatment. Like all mail-order medical fakers, Kellogg has a sliding scale of prices. The first two letters ask \$5 for the "treatment" that was sent unasked; the third and fourth letters offer to accept \$3.50 while the fifth and sixth letters inform the prospective victim that a mere \$2.50 will square the account. The sixth letter ends with the statement "This is final," and apparently it is, for no further reduction in the price of the treatment is made—but neither is postage sent for the return of the \$5 treatment. As it takes only four cents to send the \$5 treatment by mail, and as, apparently, the Kellogg company would lose money by sending that four cents for the return of the treatment that was sent unasked, the value of this \$5 package of pills is, evidently, less than four cents.



Rengo, Protone and Multo-Fruto come in packages as shown in this picture. Protone is supposed to put on flesh; Rengo is supposed to remove it. Multo-Fruto is a laxative.

[Since the above was published, the chemists of the Michigan State Dairy and Food Department have analyzed the Sanitone fraud and reported as follows:

"An analysis of these wafers by the state chemists showed each tablet to weigh 12 grains. Of this 5 grains formed the outside coating; inside were  $5\frac{1}{2}$  grains of chromium sulphate, a green pigment used by painters,  $\frac{4}{5}$  of a grain of phenolphthalein, a purgative derived from coal tar, and  $\frac{1}{2}$  grain of red pepper."]

#### **Kellogg's Safe Fat Reducer**

Kellogg's Safe Fat Reducer used to be known as Kellogg's Obesity Food. It is not a food and never was, hence when the Food and Drugs Act went into effect and falsifying became illegal as well as immoral, the name was changed. The preparation has been analyzed at various times and its ingredients, as reported by Dr. Kebler, Chief of the Division of Drugs of the Bureau of Chemistry, at Washington, were:

Thyroid gland.                      Poke root.                      Toasted bread.

Before the Food and Drugs Act became operative, Kellogg's Fat Reducer was sold under the claim that "these tablets are not a drug but a food," and further, that the preparation "turns fat into muscle." Both statements are unequivocal falsehoods.

### Protone

The Protone Company and the Rengo Company are essentially identical concerns. They are both practically owned by Frank J. Kellogg and both managed by Charles H. Shaw. There is nothing in the advertisements to give any hint as to the connection between the two; in fact, the Protone Com-

pany advertises its address as the "Protone Building, Detroit." There is no such building. Both concerns occupy rooms on the third floor of a building at 58 Lafayette Avenue. Protone is advertised as the "best flesh restorer in the world" and is said to be "a new triumph in medical science." Like the Sanitone Wafers, a "free fifty cent package" will be sent to all applicants. With the "free treatment" comes the first of the follow-up letters, which explains that the sample box could not be expected to have any special effect as it invariably takes six weeks' treatment to produce the necessary amount of flesh. The "six weeks' treatment"—six boxes—will be sent for \$5.



Greatly reduced reproduction of one of the Rengo circulars. (By courtesy of the Committee on Interstate and Foreign Commerce.)

The second follow-up letter is a reiteration of the first and still holds to the price of \$5 for six boxes; the third letter cuts the price nearly in half, six boxes for \$3; the fourth letter urges you to send in \$1.66 for three boxes; the fifth—and last—letter contains an offer to send twelve boxes for \$2.50.

It is hardly necessary to say that the business of the Protone Company is a fraudulent one and the product itself is a humbug.

### Rengo

Rengo used to be known as "Rengo Fruit" and the claim was made that its active constituents were derived from a luscious tropical fruit which grows in clusters similar to grapes. These statements are no longer made specifically

although the deceit is still carried out inferentially. The same "free trial treatment" method is used with Rengo as with the other Kellogg products; in fact, the method of exploiting Rengo is practically identical with that used in selling Protone. The prospective purchaser is urged to get six weeks' treatment for \$5. As time goes by the price is reduced from six packages for \$5 to six packages for \$3 and finally an offer is made to send three packages for \$1.66. Rengo has been analyzed and, according to Dr. Kebler's analysis, contains:

Thyroid gland.  
Poke root.

Cascara.  
Cassia fistula.

That the prolonged administration of thyroid gland will sometimes bring about a marked reduction in weight is true but its use even under skilled medical supervision is fraught with danger. It is little less than criminal that ignorant quacks of Kellogg's type should be permitted to distribute indiscriminately drugs that have the potency for harm that is possessed by the thyroid preparations.—(*Modified from The Journal A. M. A., Sept. 12, 1912.*)

#### NOTE

[In common with most mail-order quacks, the Kellogg concern, apparently, sells the letters it receives from the gullible after the individuals who wrote the letters have ceased to be profitable to the concern. A New York company that makes a business of buying and selling what is known to the trade as "sucker lists" advertises (November, 1914) that it has for sale or rent 246,764 original letters written to the "Protone" concern; 24,980 original letters written to the Rengo concern and 112,697 original letters sent to F. J. Kellogg.]

# NOSTRUMS AND QUACKERY

[SECOND EDITION]

For some years THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION has published articles dealing with quackery and the "patent-medicine evil." Most of the exposés have been the result of work done by THE JOURNAL and the Chemical Laboratory of the American Medical Association. While the claims and methods of the medical fakers have been investigated and exposed by THE JOURNAL, the Association's chemists have analyzed the various preparations put out by these concerns and thus made plain the fraudulence and speciousness of their claims.

¶ Full reports have also been published of the splendid work done by the federal government both through the agency of the post-office fraud order and by the enforcement of the Food and Drugs Act.

¶ Similar data furnished by the state authorities have also been drawn on and work done in Europe along the same lines has been used.

¶ All this matter was brought together, elaborated, freely illustrated and supplemented with additional information on the same subjects to make the book "*Nostrums and Quackery*." It was published in the belief not only that the information *ought* to go to the public, but also that the public *desired* just such information. The best evidence that this belief was justified is the necessity of issuing a second edition in less than a year. The second edition is larger by about two hundred pages and has more than one hundred additional illustrations. Much entirely new matter has been added and a large portion of the material that appeared in the first edition has been brought down to date.

¶ The distinguishing features of "*Nostrums and Quackery*" are the thoroughness with which the work has been done and the accuracy of the information it gives. It has been made even more valuable by the addition of an index that makes it a veritable "Who's Who in Quackdom."

¶ The book consists of three parts: Part I devoted to QUACKERY, Part II to NOSTRUMS, and Part III to MISCELLANEOUS SUBJECTS. These parts are again divided. Under QUACKERY, for example, we find sections devoted to "Cancer Cures," "Consumption Cures," "'Female Weakness' Cures," "Medical Institutes," and other concerns of a similar nature. Under NOSTRUMS there are chapters devoted to "Asthma Cures," "Hair Dyes," "Obesity Cures," "Rheumatism Cures" and other typical nostrum groups. In the MISCELLANEOUS section there are discussed such subjects as "The American College of Mechano-Therapy," "Molding Opinion on Food Preservatives," and others of equal interest and importance.

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ducing work under an unfamiliar system will result in wage losses impossible to estimate.

Employers would pay. There are actual figures existing on this point. Thirty-one representative firms were canvassed by the American Institute of Weights and Measures for figures showing what costs they would incur by changing over to the metric system. The results stood as follows:

Aggregate cost to 31 concerns.....	\$21,464,688.00
Average cost per concern	715,489.60
Workers employed by concerns.....	94,392
Average cost per worker	227.40

The merchant will pay. The cost of replacing scales and measures (dry and liquid) by the 1,250,000 wholesale and retail dealers of the United States, would of itself constitute a heavy drain on capital and a waste of huge quantities of perfectly satisfactory material.

As a matter of fact, no one can hope to make a complete estimate of what the cost would be, so enormous is it. One metric advocate has estimated the cost of weighing devices alone at \$10,000,000 and the total cost in all fields at \$60,000,000. These figures are, however, too low. If the metric advocates estimate, as they do, that the loss incurred by teaching our children in school the system of pints, pounds and inches amounts to \$250,000,000 a year, (an apparently ridiculous calculation), the cost of upsetting our present system would certainly be more than that.

One American industrialist estimates that the cost of changing to the metric system in his plant would be 20 per cent of the plant valuation. If this represents the general cost, it would be confiscatory. The United Engineering and Foundry Company stated that the cost to it alone would be \$1,000,000. Several concerns stated that the cost of such a compulsory change as certain bills in Congress have contemplated would be "ruinous." They would have to quit business. Henry R. Towne, author of "Our Present Weights and Measures and the Metric System," testified before a Congressional Committee:

"One thousand millions of dollars would not cover the ultimate cost to the manufacturers of the United States of the compulsory adoption in the resulting changes in their equipment, tools and gauges. The cost, it has been estimated, would be from \$50 to \$200 per employe. If the number of employes in the metal working and allied trades be assumed to be only 5,000,000, and the cost per employe only \$100, the aggregate would be \$500,000,000."

In any case, the metric proposal is by no means a simple one. Such a drastic change should have some overwhelming compensatory advantage to offer, which this has not.

# Goiter Eradication by Way of Diet

(Concluded from page 3)

there are 3,000,000 parts per billion as contrasted with the 3 parts per billion in wheat, 6 parts in lettuce, 5 parts in milk and beef, 1,000 parts in cod and 6,000 parts in oysters. Thus the merest pinch of desiccated and pulverized sea algae of the right sort contains more iodine of the right sort than all the rest of the dinner and pantry supplies combined and where employed represents the complete solution of the iodine problem.

Marine vegetables as they come from the ocean bottom are not appetizing articles of diet. They have an odor and taste which do not appeal to the palate. They readily spoil, fermenting and turning sour. When dried without the loss of their valuable mineral elements they are too salty to make them agreeable except as a salt substitute. If bleached to remove their salts, they lose much of their dietary value, as is also the case when they are processed to destroy or mask their natural flavor.

To meet these objections the carefully desiccated algae are now pulverized and the resulting powder is intermixed with ordinary articles of diet. But to save the time of the wide-awake individual who would take steps to provide his dietary with adequate quantities of assimilable iodine and would take shortcuts to accomplish that end, this powder is compressed into tablets, so that the day's supply of iodine can be taken in one swallow.

And the iodine-rich extracts of these algae, also in tablet form, are now employed by physicians with great success in the treatment of goiter, even in advanced forms. Since the adoption of this diet amendment cures well-established cases of goiter it follows that its use will serve as an effective preventive.

Here is a simple solution of our problem. To provide the requisite iodine for the child, or for the adult, one compressed tablet per day, containing five grains of properly prepared algae or extract, chocolate coated, if you please, would supply ten times the necessary one-tenth of a milligram of iodine together with many other desirable ingredients.

One 5-grain compressed tablet of marine algae (each containing 1 milligram of iodine and 1,400 being required to make 1 pound) is equivalent to:

	Pounds
Clams.....	2
Oysters.....	2
Lobster.....	2
Shrimp.....	4
<i>Sea Fish</i>	
Bluefish.....	10
Cod.....	10
Halibut.....	10

	Pounds
Mackerel.....	15
Spotted squeteague.....	110
Smelt.....	220
<i>Fresh-Water Fish</i>	
Lake Trout.....	220
Bass.....	220
Perch.....	110
Black bullhead.....	220
Carp.....	220
Lettuce.....	374
Oranges.....	136
Eggs.....	183
Cheese.....	57
Milk.....	440
Beef.....	440
Oats (and husks).....	200
Wheat.....	2000

It is obvious from the foregoing that the goiter problem is largely one of diet. It means that those who, living in goitrous regions, are able to obtain an imported diet and one diversified with fresh vegetables, fruit, milk and sea fish may escape the scourge.

It has been stated by the eminent authority, McCarrison, that "There are few human beings living under modern conditions of life in whom the (thyroid) gland is wholly normal." A statement which is astounding in its broad significance but which is readily understandable when the absence of iodine from the average diet is exposed.

## Beauty Skinned Deep

(Concluded from page 7)

small may be enlarged, the Cupid's bow straightened, and the permanent dimple removed, all by a skilled surgeon, and in the face of the best efforts of the beauty doctor.

The human hair is not unlike a tulip, a hyacinth, a gladiolus, or any other bulbous plant. It springs from a little bulb seated in the skin. When that bulb is dead, when the hair disappears, it is of just as much effect to douse the scalp with lotions and expect the hair to grow as it is to irrigate a field and expect unplanted onions to burst forth from the soil.

It is a conservative statement, which virtually any reputable surgeon will support, that facial surgery, as practiced by the beauty doctor, and by the "face-builder," has converted more young women into old women, and more old women into older women, than it has old women into even fairly young-appearing women. Yet the get-rich-quick self-styled "plastic surgeons" go right on getting richer, whether it be at \$10 a wrinkle, or \$500 for a new nose, or \$5,000 for a peeled face. If the women of this country would learn that the only way to be certain of what can be done to one's face is to consult one's own physician or surgeon, and then follow his advice, these face-fixers would be forced out of business overnight.



# Why They Danced at St. Mark's

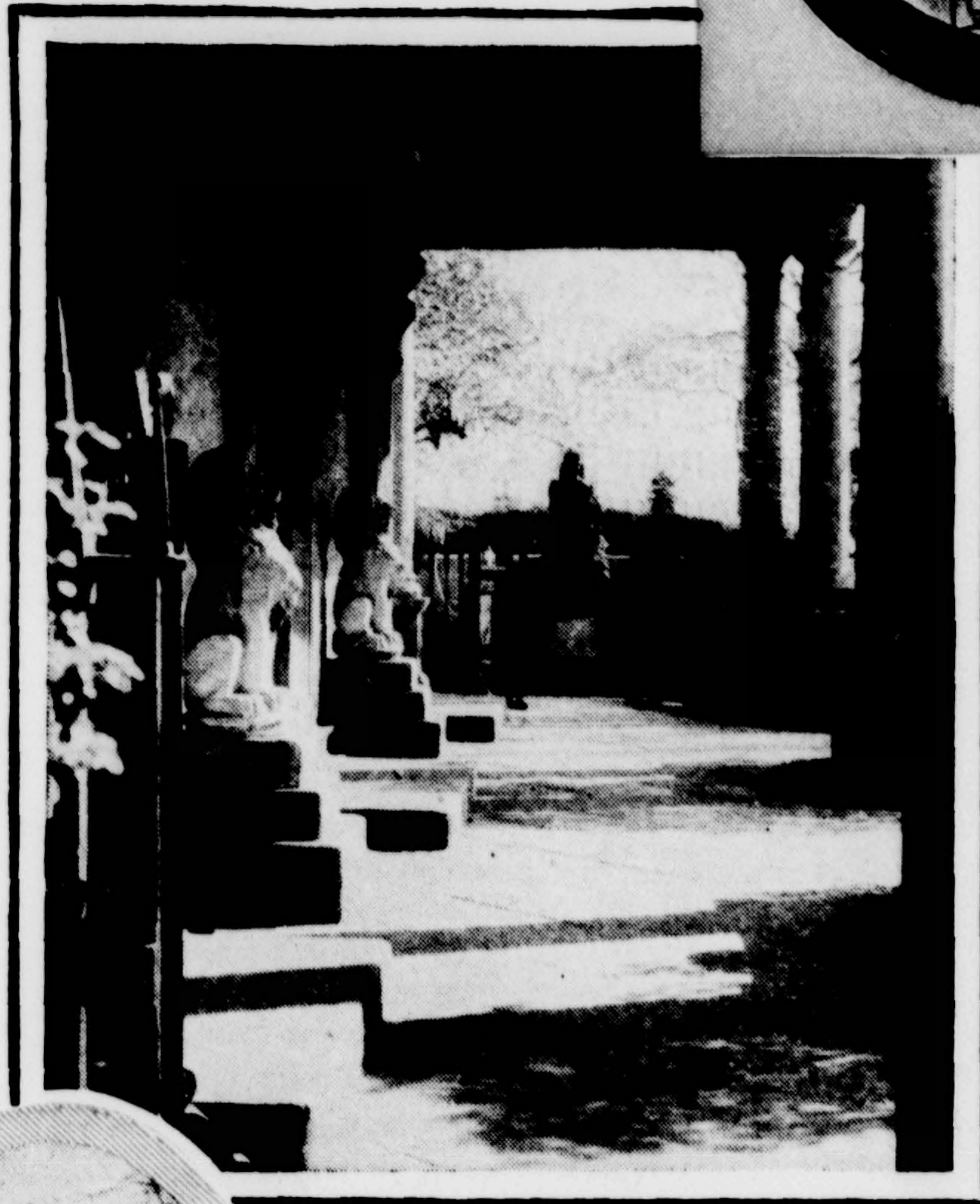
(Continued from page 17) and an average of fifteen birthdays a month noted. This gives him an opportunity in these Sunday afternoon symposiums to have something especially attractive and timely and through the discussion to link the thoughts of the groups that attend with the church and with religious ideals. I attended the afternoon symposium on eugenics, and, if a preacher's testimony is worth anything, Dr. Guthrie most certainly linked that discussion up with Divine truth.

"Every symposium must show that the body of the thing is religious," said Dr. Guthrie, with the snap of a deep conviction.

"The morning service is a steady apologetic, an effort to show that the religion of Christ is capable of becoming a world-religion. If you want a phrase that will symbolize me myself it is this: I'm a Bridge Builder. I am building a bridge between the practical and the spiritual.

"The evening service is where we have had the dancing that attracted so much public attention. This is an attempt to appeal to the imagination. I drop the appeal to the intellect. The dance makes the greatest psychological appeal in religion. All who come here in the evening and see our dancing are gripped. Our first symbolical dancing was done in celebration of the Virgin Mary. We have never done anything more seriously, more sincerely or more sacredly. We trained a group of dancers, one of whom was my own daughter, for seven years before attempting this service. I did not dare attempt this tribute to the Virgin Mother, the Ideal of Womanhood, until we had trained for that long period, with deep devotion and reverence.

"Our second Dancing Service was



called 'The Evolution and Progress of the Race.' We simply showed this progress through rhythmic motions. Our third Dancing Service was entitled 'After the War—What?' It was really a Pacifist Oratorio. It was the poetry,



and dance and music of Peace, and it gave us an opportunity for spiritual creation. Our fourth Dancing Service was what I called the 'Spring and Corn Dance.' It was an attempt to teach the holiness of food.

"No human being who ever saw these dances but was subdued to reverence," said Dr. Guthrie quietly. "I have developed my own dances and dancers just like a church choir. I use green and blue lights and that gives the girls who take part a dim, far-off, idealistic appearance. They become entirely impersonal. I would hardly allow my own daughter to be one of the dancers if this were not true."

"The public has a different idea of your dancing," I suggested.

"The public's idea of the dance is that it is a display of a person. The real meaning of the dance is that it is the language of the spirit. In the dance the human body is used as a symbolical and contagious vehicle of ideas, the same as a minister's gestures in preaching. Any religious function is a survival of the dance."

"Give me some idea of just how you interpret thought in a religious dance," I requested.

"All right. This is it: Say we want to tell the audience that violence will not promote the interests of the human race. The girls in the dance move from left to right, giving the gestures of pushing, and lifting, and hauling, and fighting, and when they reach the extreme right stage (Concluded on page 31)