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AND
HOW TO GAIN

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CHICAGO

HOW TO REDUCE AND HOW TO GAIN

BY

WILLIAM S. SADLER, M.D.

PROFESSOR OF THERAPEUTICS, THE POST-GRADUATE MEDICAL SCHOOL OF CHICAGO; DIRECTOR OF THE CHICAGO THERAPEUTIC INSTITUTE; FELLOW OF THE AMERICAN MEDICAL ASSOCIATION; MEMBER OF THE CHICAGO MEDICAL SOCIETY, THE ILLINOIS STATE MEDICAL SOCIETY, THE AMERICAN PUBLIC HEALTH ASSOCIATION, ETC.

AND

LENA KELLOGG SADLER, M.D.

ASSOCIATE DIRECTOR OF THE CHICAGO THERAPEUTIC INSTITUTE; FELLOW OF THE AMERICAN MEDICAL ASSOCIATION; MEMBER OF THE CHICAGO MEDICAL SOCIETY, THE MEDICAL WOMEN'S CLUB OF CHICAGO, THE ILLINOIS STATE MEDICAL SOCIETY, ETC.

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DEDICATED

TO

**Our patients—those sufferers from obesity or emaciation—who have,
by their perseverance in following out these instruc-
tions, achieved the results herein recorded**

PREFACE

DURING the last twelve or fifteen years we have had an exceptional opportunity to try out all of the numerous theories and methods which have been advocated as beneficial in the treatment of obesity, emaciation, and other disorders of human nutrition. During this period we have been privileged to treat several thousand patients — both in the home and in connection with an institutional régime — and have thus gradually accumulated an experience in the management of both obesity and emaciation which we believe should now be put on record for the benefit of that large army of men and women who suffer from one or the other of these disorders of metabolism or from those errors in nutrition which directly or indirectly result in increasing or decreasing the bodily weight above or below those points compatible with the enjoyment of good health and normal activities.

While it is designed that this treatise shall be in every sense popular and in every way adapted to the easy comprehension of the average layman, nevertheless, it should be recognized that the methods

herein advocated are based on well-known scientific principles, and that this little manual is also designed to serve as a practical guide to both physicians and nurses, in that it is hoped it will prove to be a help to them in their efforts to formulate and successfully carry out the various methods of dietetics and other treatments in the management of these common disorders of metabolism.

This book is divided into two parts: Part I deals with the causes and cure of obesity, while Part II is occupied with the discussion and management of emaciation. In recent years much has been written and said about various methods of reducing the body weight, while but few suggestions have been offered to help those who suffer from under-weight, in their efforts to gain flesh. It is the purpose of this little work to give equal attention to these two extremes of disordered nutrition, and the patient who is under-weight will find the discussion in Part II—how best to put on flesh—to be equally full and complete as compared with the discussion in Part I, which deals wholly with the methods employed in the reduction of body weight.

The methods herein advocated are those which the authors have formulated as the result of practical experience and they represent the procedures which are daily employed in the management of these cases. The methods described for the treatment of obesity may

be divided into two parts—first, those which are in every way adapted to home use—those methods which patients of average intelligence can carry out in their own homes, under suitable medical supervision and with occasional suggestions from the physician; and, in addition to these “home methods,” the Institutional régime—those methods which require the assistance of the medical gymnast and which necessitate the employment of special medical apparatus which would be found only in special institutions or institutes devoted to this work and which are properly equipped to carry out the more elaborate and scientific treatment of obesity.

In a work of this kind, dealing so largely with diet and which so thoroughly covers the proper diet for both increased and decreased metabolism, we have thought it best to enhance its value as a reference work by supplying in the appendix a large and rather complete set of diet lists, dealing with numerous diseases and disorders other than obesity and emaciation.

Every effort has been made, both in the preparation of the text and in the employment of illustrations, to make this work practical—first to the physician who desires to give his patient a little reference work which can serve as a guide in carrying out his instructions—to provide the patient with full data and instructions—including diet lists—and, second, at the same time to provide the layman with a practical and pop-

ular treatise on the correction of these common errors of nutrition which would be free from all faddish advice or other harmful teachings.

The instructions concerning the treatment of emaciation — those patients suffering from under-weight — is based upon our experience in dealing with patients both in the home and those under supervision in medical institutions. On the whole, these instructions for putting on flesh can be carried out by the average patient in the average home with but a little help and guidance from the physician; in fact, in recent years, we have been able to reduce these methods of “putting on flesh” to such a system that — in the majority of cases — it is now being carried out successfully in the home, either with or without the help of a trained nurse.

Numerous chapters of this work have recently appeared serially in the *Ladies' Home Journal*, and our thanks are due the publishers for permission to include the same in this volume.

The large number of persons who need the treatment herein described and the lively interest on the part of the general public in these methods has led us to believe that the time is ripe for a popular presentation of the subject based on sound scientific principles, and if our efforts to help those who are “fat” to reduce, and those who are “thin” to increase their weight, shall meet with even but a slight degree of success, we

shall feel amply repaid for the efforts put forth in the preparation of this volume.

WILLIAM S. SADLER.

LENA KELLOGG SADLER.

32 N. STATE STREET, CHICAGO,

October 1, 1920.

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Part I
How to Reduce

How to Reduce and How to Gain

PART I

HOW TO REDUCE

CHAPTER I

HOW MUCH YOU SHOULD WEIGH

WHEN we come to study the question of human nutrition, one of the first things which must be considered is the subject of average, normal, body weight for both men and women.

AVERAGE BODY WEIGHT

In preparing the tables of average weights for this work, we have carefully consulted the data collected by gymnasia, the life-insurance companies, and many other agencies engaged in research along these lines; and, as explained in the footnote accompanying the tables of average weight, the figures given for any age and height include ordinary, light street clothing

—but not overcoats or other outer wraps. The allowance for clothing, in these tables, may be reckoned at about seven pounds. So the actual net weight (undressed) should be computed at about seven pounds less than the figures given in the accompanying tables.

The reader will note that separate tables of weight are given for men and women; also that the subject of body weight is classified according to both height and age. Separate weights are given for both men and women, covering five-year periods from fifteen to fifty years of age—it being considered that one's weight is practically stationary after fifty.

The table of weights for men is based on heights running from five feet to six feet five inches; while the women's runs from four feet ten inches, up to six feet three inches.

THE AVERAGE MAN

The following table is suggested as indicating the average weight and measurements of the ideal American man of middle age:

Standing height	68.5 inches
Weight (net)	144 pounds
Sitting height	36.2 inches
(52.8 per cent of height)	
Length of arms.....	68.5 inches
(Same as standing height)	
Circumference of head.....	22.0 inches
(32.1 per cent of height)	

Circumference of chest.....	34.2 inches
(50 per cent of height)	
Circumference of waist.....	31.7 inches
(46.4 per cent of height)	
Height of sternum.....	6.5 inches
(9.5 per cent of height — not including cartilage)	
Height of abdomen.....	15.0 inches
(21.9 per cent of height — from base of cartilage to pubes)	
Sternum to umbilicus.....	8.2 inches
(12 per cent of height)	
Umbilicus to pubes.....	6.8 inches
(10 per cent of height)	
Bi-iliac diameter	11.3 inches
(16.6 per cent of height)	

THE AVERAGE WOMAN

The measurements of the average American woman of middle age are given in the following table:

Standing height	66.5 inches
Weight (net)	133 pounds
Sitting height	35.1 inches
(52.8 per cent of height)	
Length of arms.....	66.5 inches
(Same as standing height)	
Circumference of head.....	21.5 inches
(32.3 per cent of height)	
Circumference of chest.....	33.2 inches
(50 per cent of height)	
Circumference of waist.....	31.6 inches
(47.6 per cent of height)	
Height of sternum.....	6.3 inches
(9.5 per cent of height — not including cartilage)	
Height of abdomen.....	15.8 inches
(23.7 per cent of height — from base of cartilage to pubes)	
Sternum to umbilicus.....	9.0 inches
(13.6 per cent of height)	

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Umbilicus to pubes.....	7.1 inches
(10.7 per cent of height)	
Bi-iliac diameter	10.6 inches
(16 per cent of height)	

WEIGHT AND MEASUREMENT STANDARDS

The measurements shown in the foregoing tables are standardized by taking the averages of many thousands of such measurements of men and women as made by the United States Army, colleges, gymnasiums, etc.

The patient's weight may be arbitrarily standardized, in keeping with the following rule: Two pounds in weight is allowed for every inch in height, and five pounds additional for every inch above 67 inches. Thus, to estimate the normal weight of a patient 5 ft. 10 in. in height, proceed as follows: 5 ft. 10 in. equals 70 in. 70×2 lbs. equals 140 lbs. 3 inches above 67 (5 lbs. for each in.) equals 15 lbs. 140 lbs. plus 15 lbs. equals 155 lbs.—the normal average weight for a person 5 ft. 10 in. tall. Women average about 5 per cent less than men in applying this standard.

TABLE SHOWING AVERAGE, NORMAL WEIGHT,
ACCORDING TO HEIGHT AND AGE¹

MEN

HEIGHT		AGES							
Ft.	Ins.	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 and over
5	0	113	119	124	127	129	132	134	135
5	1	115	121	126	129	131	134	136	137
5	2	118	124	128	131	133	136	138	139
5	3	121	127	131	134	136	139	141	142
5	4	124	131	134	137	140	142	144	145
5	5	128	135	138	141	144	146	148	149
5	6	132	139	142	145	148	150	152	153
5	7	136	142	146	149	152	154	156	157
5	8	140	146	150	154	157	159	161	162
5	9	144	150	154	158	162	164	166	167
5	10	148	154	158	163	167	169	171	172
5	11	153	158	163	168	172	175	177	178
6	0	158	163	169	174	178	181	183	184
6	1	163	168	175	180	184	187	190	191
6	2	168	173	181	186	191	194	197	198
6	3	173	178	187	192	197	201	204	205
6	4	178	183	192	198	203	208	211	212
6	5	183	188	197	203	209	214	217	218

¹ The weights shown in this table include average, light street clothes, but not overcoats or other wraps.

TABLE SHOWING AVERAGE, NORMAL WEIGHT,
ACCORDING TO HEIGHT AND AGE¹

WOMEN

HEIGHT		AGES							
Ft.	Ins.	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 and over
4	10	105	110	114	117	119	123	127	128
4	11	108	113	117	120	122	126	130	131
5	0	110	115	119	122	124	128	132	133
5	1	112	118	122	124	126	131	133	135
5	2	114	119	123	126	128	133	136	138
5	3	117	122	126	129	131	135	139	141
5	4	120	126	129	132	135	138	141	144
5	5	123	130	133	136	139	142	145	148
5	6	127	133	136	139	143	146	150	153
5	7	131	138	140	143	147	150	154	158
5	8	135	141	145	149	152	155	158	163
5	9	139	145	149	153	157	160	162	167
5	10	143	149	153	156	159	161	165	171
5	11	148	152	157	162	164	167	169	174
6	0	153	156	159	164	166	170	172	177
6	1	158	162	165	169	172	177	179	183
6	2	163	167	171	176	180	185	188	192
6	3	168	173	177	183	188	196	200	205

¹The weights shown in this table include average, light street clothes, but not overcoats or other wraps.

CHAPTER II

HOW WE GET FAT

HAVE you ever watched a fellow-traveler who was overburdened with fat? Have you noted how laboriously he descends or ascends stairs, or with what discomfort he squeezes through spaces amply large enough for the ordinary individual? Have you ever observed the amusing spectacle of the ungraceful, obese woman trying her utmost to act and appear graceful? Have you ever helped to care for a bed-ridden patient who was excessively fat?

Most of us have been either too fat or have friends who are, and we know what a burden and inconvenience excess flesh comes to be. We know how it prevents most forms of travel and many kinds of enjoyable physical exertion. None of us can contemplate with joy the fate of being confined for a lifetime within four walls and being thus deprived of those pleasant activities which make life a pleasure to the average individual.

In order to stay the progress of "fat-getting" intelligently, you will have to recognize and classify your particular brand of corpulency; for there are

about a dozen separate and distinct causes of obesity; and in order to get at the direct factors of *your* obesity, study the next few pages and discover the cause or causes which directly and indirectly contribute to your over-weight.

1. SEDENTARY LIVING

The people who "sit" a great deal, such as semi-idle housewives, lawyers, doctors, ministers, business men and women, office assistants, and teachers, if they are free from worry and "nerves" and enjoy good general health, are inclined to put on flesh—especially as they grow older. The sedentary life with its tendency to overeat and underwork (physically) lies as the very bottom of much obesity. If the appetite is good, the starches, sugars, and fats are eaten in excess and pause in the process of complete combustion to store themselves away in the abdomen and about the hips and other parts of the body as so much excess fat.

2. DEFICIENT EXERCISE

It is unmistakably true that the majority of individuals approaching thirty-five and forty—the "getting-fat" age—do not do enough physical work each day to be worthy of the name "exercise." It is not necessary to be a college athlete in order to enjoy good health and keep one's flesh down; but there is a daily

minimum of exercise which is necessary to good health and which also helps to curb the tendency to obesity, which is present in so many "hearty eaters."

Did you know that in order to keep the body strong and healthy, the required amount of daily physical exercise is equivalent to a six-mile walk? Of course, this takes into cognizance the household duties, walks to and from the office, stair-climbing, etc. These activities all form a part of the six-mile walk. Many persons approaching forty do not walk two miles a day—much less six miles. You seldom see a day laborer who is fat. (Let us also whisper in your ear that comparatively few of these day laborers suffer from the numerous other physical troubles sedentary people are bothered with, either.) The average day laborer does an amount of work equivalent to lifting nine hundred tons one foot high each day; expressed differently, he walks thirty-eight miles each day, or climbs nineteen miles up the side of a mountain five thousand feet high.

And so we find that our obese friends around forty and fifty not only habitually overeat, but they do not exercise enough to burn up the normal food supply of the average individual, and so they gradually put on flesh and grow "loggy" as a result of this lack of exercise. The whole question of exercise is closely related to the food supply. The more you eat, the more you must work to keep the weight down.

3. OVEREATING

Very few people will admit that they habitually overeat, and many times it is never discovered until an excess of flesh is put on or until the individual is regarded as too great a risk for life insurance; for it is a well-known fact that persons whose abdomen measures more than the chest are regarded as poor risks by the insurance companies.

The body—the house in which you actually live—is literally stored from cellar to garret with food which you fail to burn up. The lungs, the heart, the kidneys, and intestines are enveloped in an overcoat of fat. When this padding of fat becomes excessive, the body is handicapped in its every function and action—even the mind becomes sympathetically sluggish. An attempt to read, to sit, or even to converse is often accompanied with drowsiness and heaviness and a desire to go to sleep.

If there is one article of common food more than another that is directly the cause of obesity, it is the overeating of white bread. Who has not seen one person (at a single meal) devour from four to six slices of bread—many times covered over with butter and coated with jam? Bread is eaten with the soup, the entrée, the vegetables, and the salad, and it is eaten between courses as well. The American people are great bread eaters—they eat too much bread.

It was discovered in one family, whose children

were excessively fat, that each child was eating from twelve to eighteen slices of bread and butter with honey, jelly, or jam, daily. This bread alone, to say nothing of the vegetables, meats, salads, desserts, milk, etc., was almost sufficient to cause the gain in weight.

She Ate Like a Bird

A woman weighing two hundred and twenty-five pounds desired to reduce. An inquiry as to what she ate brought this reply: "I don't think I am excessively fat because of overeating, for I eat just like a bird; why, really, Doctor, I don't believe I eat enough to keep a fly alive."

With paper and pencil we accurately tabulated what was eaten for breakfast, luncheon, and dinner, and to the astonishment of both patient and doctor, we beheld this:

1. For breakfast she had:

- 1 poached egg
- 1 slice toast with butter
- 2 small pancakes, butter, and syrup
- ½ grapefruit, with 4 teaspoonfuls sugar
- 8 large prunes, with 4 tablespoonfuls cream
- 1 cup coffee, with 3 cubes of sugar and cream

2. For lunch she had:

- 1 slice toast with creamed chicken
- 1 lettuce and cucumber salad, whipped cream dressing
- 8 halves of pecans
- 4 ripe olives
- 1 glass iced tea

3. For dinner she had:

- 2 baked potatoes with 4 tablespoonfuls white sauce
- 1 breast of chicken
- 1 serving fish
- 2 slices bread, 2 squares butter
- 1 water-cress salad
- 1 piece lemon-cream pie

And yet she said that she "ate like a bird." This woman is typical of thousands of others.

Now the nourishing value of milady's rations, expressed in food units, totals about thirty hundred calories, fully enough to supply nourishment, heat, and energy to a ditch digger or to any other man or woman engaged in hard physical labor. The maximum number of food units desired in the reducing régime of this woman was about one thousand calories daily.

One can see at a glance that each day this woman was taking an excess of food—fuel—that she was eating more than she could "burn up" and that this unconsumed food was destined to be "stored up" in the body and thus directly add to the sum total of the body's weight. And the tragedy of it all is that most unwittingly the excess flesh is slowly but surely added day by day; and in the whirl of modern everyday activities, its presence is hardly noted, until a new suit or gown is needed, and then we are appalled when told by the *modiste* or tailor: "Your waist line has increased three inches."

There would seem, however, to be another, but very limited, group of cases, in which, owing to some inherent lack of vital power in the cells of the body, fat is able to accumulate even in the absence of any very excessive intake of food. This may explain some of the cases in which persons become fat even though they are very moderate eaters. There is reason to believe, however, that this is a very rare event and that in the majority of cases in which it is alleged to occur the individual is really the victim of self-deception.

4. EATING BETWEEN MEALS

A patient recently complained of almost a complete loss of appetite. The food at the table was only daintily nibbled at and in great anxiety the husband, brother, and growing son appealed to us for medical aid.

She was in a fair amount of flesh, and so we quizzed her closely regarding the employment of her time during the day. She prepared all the meals herself and enjoyed the work very much—being particularly interested in the preparation of “new dishes.” We suggested that for every morsel or drink (except water) taken between the three regular meals, an equal portion be put in a two-quart glass jar and brought to the office. She agreed honestly to carry out the plan. The following day the two-quart glass

jar was two-thirds full of "tastes," "bits," and "testing portions." At least one good big meal was contained in the jar.

Little children are allowed to "piece" between meals; and true to habit, it is often continued throughout life. For one to refuse a social half-hour in the ice-cream parlor or to decline sandwiches, cake, and bon bons during the "round" of calls or at "pink teas" is almost unheard of—so universal is the habit of "between meal" eating. And the pity of it all is that the food consumed on such occasions is usually exceedingly high in nourishing value and often quite entirely responsible for the gradual increase in weight.

5. THE SWEET TOOTH

Be it far from us to decry the moderate consumption of sugar; for on account of the ease and rapidity of its absorption, it is perhaps more truly adapted as a muscle food than any other single food substance. Who has not read how the English gave sugar to their blooded horses in order to sustain them in the heavy trials to which they were subjected, or of how the explorers in the Arctic zones and the Swiss Alpine guides employ sugar or sweet chocolate to sustain them on their arduous expeditions? It is common knowledge how our own soldiers were sustained by sweet chocolate, when on forced marches during the recent World War.

By means of a specially devised machine, the ergograph, Mosso was able to demonstrate that sugar has a notable effect in lessening muscle fatigue. On long military marches ten lumps of sugar consumed daily enable the marcher to suffer less from fatigue, hunger, or thirst than his fellows who have not been allowed it. No end of illustrations might be cited regarding sugar as a specially valuable food for those who desire to perform a special muscular task, or for those who are compelled to undergo exertion while in a state of more or less exhaustion.

It is the "between meal" eating of concentrated sweets, such as the consumption of one-fourth to one pound of chocolates, bon bons, etc., that we deplore. Were sugar eaten in the dilution strength of our first food—mother's milk—were hard candies held in the mouth for slow dissolution after a meal or between the dinner courses—this consumption of sugar at 10 per cent could not possibly harm any healthy person—unless it be those already inclined to excessive fat. The young woman with a sweet tooth eats a half pound of chocolates, just because she likes them, between meals, during the evening theater or concert, and this excessive consumption of concentrated sugar, in many individuals, fails to be completely burned up and is subtly stored up as fat deposits about the hips, the arms, chest, and waist.

Of course, as we shall see in Part II of this book,

we meet up with those persons who instantly burn up every stick of fuel delivered at their door, or else they fail to assimilate it at all. None of the practices noted in this chapter will serve to fatten these constitutionally "lean" individuals.

6. TOO MANY MAIDS

While many households are giving up the routine housekeeping and are moving into hotels or into apartments with "maid and janitor service," a multitude of others are still worrying their wits over maids, and the pity of it is that it is in many of these very households that it would mean physical health and spell mental freedom for certain members of the family if they had fewer maids or none at all; we repeat, it is in these very homes where the mother or daughter would benefit physically, psychologically, and, yes, even spiritually, if they had some regular daily duty to perform—that we find not only the cook, the laundress, the janitor, and the chauffeur, but the upstairs-maid, the nursemaid, and the parlor-maid as well.

A certain man who has amassed a fortune in the last ten years was asked one day how it felt to be a millionaire. "I don't feel much different than I did when I was worth five hundred dollars, except that I miss my wife's cooking," was his reply. Now unless that particular wife is substituting some wholesome

social welfare effort, uplifting neighborhood work, church work, or club work—anything but bridge and whist gambling games, she had far better continue to superintend the cooking.

Mothers and girls, and boys, too, for that matter, are really deteriorating mentally and physically as well as getting fat for the want of real manual duties to perform.

One mother's ideas of home duties were expressed at a fashionable gathering not long since. She was referring to her two beautiful children, as she remarked: "Children are a task; there is the good-morning kiss and the good-night kiss, and while it is a pleasant task, still it is a task." Do you wonder that this lady of fashion, society, and ease was obese? Only the presence of some systemic disorder could prevent the accumulation of fat in the case of such physically indolent individuals.

7. REPEATED PREGNANCIES

One of the most frequent causes of the putting on of flesh in the case of women is child-bearing, particularly if the pregnancies follow each other too closely. Overeating—eating for two—is an offense too often practiced during the expectant state. Physicians should carefully regulate the diet in order that first, the child does not become excessively large, and, second, that the mother does not add to her normal

weight a superabundance of flesh; neither condition is necessary nor to be desired.

During the lactation the overeating of starches, sugars, and fats, instead of producing more milk, usually causes the mother to become more fat. One mother put it thus: "During the six weeks I ate and drank between meals to make more food for baby, he lost sixteen ounces and I gained twenty pounds."

Mothers should be properly supported with carefully fitted corsets which should be put on when baby is about six weeks old, while during the previous weeks, a properly fitted abdominal binder should have been worn—one that not only would have supported the abdominal organs, but would have controlled the "spreading of the tissues" as well. In this way much help can be given those young mothers who are inclined to "put on flesh."

Thousands of young women weighing one hundred and twenty pounds at the time of marriage, weigh one hundred and forty to one hundred and sixty pounds by the time baby is two or three months old. Much of this can be avoided if the diet is regulated and proper exercise taken during the periods of expectancy and lactation.

8. INTERNAL SECRETIONS

The house we live in—the body—contains many important "internal glands;" i. e. the thyroid, located

in the anterior neck region; the pituitary gland, a small, pea-shaped body at the base of the brain; and the adrenals, covering the tops of each kidney like a hood; and the sex glands. Some of these so-called "internal glands" secrete important fluids—so important that growth, metabolism, blood-pressure, and many other vital bodily phenomena are wonderfully influenced by them; for instance, the cretin, or dwarf, comes into the world with little or no thyroid-gland secretion, and under proper medical supervision with a daily dosage of sheep's thyroid, can be made to attain to about the full-sized growth of the average adult.

These internal secretions stimulate each other in an almost intelligent-like manner; take the thyroid, for example; it supplies a secretion to the blood which enables the latter, while circulating through the anterior pituitary body, so to excite it that a secretion is thrown out which, when carried to the adrenals, stimulates them to pour forth still another secretion, which immediately influences the general nutrition. The rate and degree of the oxidation, or burning up, of food in the human body is directly regulated by the working of these so-called "internal secretions."

Now, if for any cause the functional activity of any of these important glands becomes inadequate or excessive, general metabolism is influenced accordingly; so that the delicate nervous balance which in

perfection means the bloom of health, when it is out of balance and out of working harmony, spells deranged and impaired nutritional activities, ranging all the way from distressing nervous headaches and backaches, to leanness on the one hand and obesity on the other.

9. OLD AGE

Both men and women tend to put on flesh as they grow old. This tendency is quite universal and is not only due to a slowing down of activities and lessened nervous expenditure, but also results from a lessened thyroid secretion and therefore a lessened rate of burning up foodstuffs in the body. In those cases where the thyroid secretion keeps up and where the nervous activity is more or less maintained, we do not see this general tendency to take on flesh with advancing age.

The bodily changes—wear and tear—as well as cell metabolism are all slowed down with passing years; so that less food is required to repair and renew the human machine, and less food is therefore needed to maintain the normal body weight. Under these circumstances, if the food allowance of former years is regularly eaten, it is bound to result in an increase in weight, provided that the organism is healthy and the powers of digestion and assimilation are in nowise crippled.

10. HEREDITY

Obesity does run in families—there is no doubt about that—but while heredity contributes to its possibilities, nevertheless, environment, represented in this instance by what you eat and how you eat, is, after all, the determining factor.

There are no hereditary laws arbitrarily determining that a man or woman shall weigh around two hundred, for instance, as long as that individual curtails the desire for fattening foods and controls the appetite while partaking of even those foods found within the scope of the “reducing régime.”

So forget that there are fat folks to be found in your family tree for generations and generations; resolve that environment shall overbalance heredity and that temperance in what you eat and what you drink shall determine the vexed question of bodily weight in your generation. The character you build in your life of temperance and self-denial will tower far above any physical pleasure or temporary satisfaction which is to be found in the gluttony so often seen at the banquet table. Perhaps, one of the chief ways in which heredity indirectly plays its rôle in obesity is the transmission of a weak will—one that cannot say “no” in the presence of good things to eat.

CHAPTER III

FROM TABLE TO TISSUES

THE world is full of people who go through life seeking a "sign" or a "miracle," quite unconscious of the fact, that daily, hourly, and momentarily, there is wrought in their very bodies physiological mysteries that have puzzled scientists and physicists for ages.

THE MYSTERY OF DIGESTION

Throughout the centuries the human-like acts of the living cells of the body in their selective work of choosing important food materials from the blood, and their mysterious ability to build them up into highly specialized structures, such as muscle, sinew, skin, or hair, has never been fully comprehended.

Many are the changes that take place in the potatoes, bread, and meat before they are thus "miraculously" transformed into the bodily tissues. The chewing, the swallowing, the thorough mixing with the digestive juices, the churning, and the constant motion of the food in the stomach, its exit into the intestines, where the work of mixing, dissolving, and digesting is continued, are all parts of the wonderful

process of reducing the food we eat to the digested elements we find in the intestines. The intestines are lined with a very interesting mucous membrane which is literally filled with minute suction pumps which suck up all the good and useful parts of the food, which, in turn, are gathered together by the lymphatics and carried to the blood.

Now the blood, laden with oxygen from its passage through the lungs, becomes the carrier of this new building material to every organ, every tissue, and every cell in the body, where each single cell, or group of cells, takes unto itself such portions as it may require for purposes of heat and energy and for the repair of its cell substances.

BODILY METABOLISM

It requires actual oxidation to liberate the heat and energy which was stored up during the life-growth of the plants which produced the grains, sugar, etc., and it is just here that we see the important rôle of the oxygen we take in, in the very air that we breathe; for inside of each tiny cell, oxygen actually enters into the combustion by which the heat and energy of the assimilated foodstuffs are liberated. The ashes of the food which we thus burn up and which cannot be used as heat, energy, repair, or growth, are discharged from the body in a number of ways, viz., through the skin as perspiration, both sensible and

insensible; through the kidneys as urine; through the bowels as waste; and through the lungs in the CO_2 of the exhaled air.

The ashes of meats, cheese, white of egg, etc. — the proteins — are far more complex than those of the starches, fats, and sugars. Having undergone specialized changes in the liver, the protein ashes are finally eliminated by the kidneys in the form of urea, uric acid, etc.

The phenomenon of the breaking up and tearing down of the complex food molecules — the table foods — into the simple elements; combined with the subsequent building up of these substances into the living cells of the body is truly a work of creation, and is likened unto the miracle of bringing the dead to life. The human body is a veritable maelstrom of chemical changes. Chemical combustions and oxidations are taking place continuously at the expense of the very food we eat, whose stored-up energy is thus transformed into the active forms of heat and motion, as daily observed in the bodily temperature and muscular activities. At the same time, water, carbon dioxide, urea, and a few other nitrogenous substances are being continuously formed as the normal waste products of these changes, and are continuously or intermittently excreted.

If just enough is eaten to maintain this requirement of the body, we are said to be in a state approaching

metabolic equilibrium; if the intake exceeds the outgo, the body adds to its capital and labor as well; while if the outgo exceeds the intake, the accumulated capital is drawn upon; all of which results in clogging the machinery on the one hand or draining the reserve on the other. In the one case we are called upon to cope with obesity; in the other to combat emaciation.

WHAT IS IN FOOD

There is probably nothing in our experience to which we give as little thought as we do to what we eat. We usually eat because we are hungry or because the food looks good or tastes good, regardless of what it is or what we actually need. Fortunately, Nature took this into consideration while portioning out her food-stuffs, so she wraps some foods in large bundles and makes them easy to get at, such as melons, the citrous fruits, most vegetables, etc., while certain other foods—a little of which is just enough—such as the nuts and cereals, she binds up into exceedingly small bundles—and many of them are hard to get at.

It is interesting to note that the foods done up into big bundles and those which are easy to get at are usually the very foods which are the best for us; while everybody in this age of the twentieth century knows that too much meat and too many nuts eaten at one time are unwholesome, and we find them both difficult or unpleasant to obtain.

A bird's-eye view of foodstuffs in general classifies them as proteins, starches, sugars, fats, cellulose, and salts — not taking into account the presence of more or less water.

FOOD ELEMENTS

By far the most abundant and most universally distributed of the food elements are the starches. Such foods as potatoes, rice, and other cereals, are largely starch. Cellulose is found in all the fruits and vegetables. We are all familiar with the fiber-cellulose of parsnips, cabbage, greens of all sorts, celery, and carrots. Sugar, together with cellulose, richly abounds in all fruits, sugar cane and many vegetables, such as beets, parsnips, etc. The fruit acids are akin to the sugars in their origin and general chemistry.

Protein is a highly complex food element, of both animal and vegetable origin, and contains nitrogen in addition to the carbon, oxygen, and hydrogen of the other foods. Most proteins also contain small amounts of phosphorus and sulphur.

The fiber of meat commonly known as lean meat — fibrinogen; the dried bean, pea, or lentil — legumin; the curd of milk — caseinogen; the gluten of wheat and other cereals; most nuts; and the white of the egg — albumin — are all proteins. This food element is utilized chiefly for bodily repair and forms a necessary part of our daily food, in proportion to our starch re-

quirement, of about one part to ten of starches, sugars, and fats.

Fats are also of both vegetable and animal origin. They occur in meat, fish, butter, etc. They are abundant in olives, corn, peanuts, and cotton seed, and it is from these sources—olives and cotton seed—that we obtain much of our edible oil. In the cereals, notably oatmeal, and in various nuts, fats are found in small quantities.

The salts or mineral matter are found in varying amounts in all of the cereals, vegetables, fruits, and nuts, and constitute an important element for bone building in addition to serving other purposes in the chemistry of the blood-stream.

Another exceedingly important thing to remember about foods is the *live* element—the “vitamins”—which represent those little-known principles of most foods, which are more or less destroyed by cooking and which are essential to the prevention of such diseases as scurvy, rickets, etc., not to mention their relation to numerous other chronic disorders. We must not forget that there is something else in food besides just calories.

Vitamins abound in nearly all uncooked foodstuffs; so it follows without the necessity of stating it here, that everybody from two months old and up should eat or drink something every day (preferably at every meal) that is uncooked. Summer and winter alike,

we should eat green stuffs, fresh fruit, or if the extremity demands it, dried fruits, uncooked, will answer the purpose. There are several different kinds of "vitamins," but oranges and tomatoes come nearer containing all of the known varieties than any other commonly used foods.

Cellulose gives bulk to the fruits and vegetables and is an important item in the treatment of obesity, in that it affords the patient an opportunity to "fill up" without taking too much nourishment. Little or no cellulose is digested or assimilated, and therefore the individual who is over-weight is able to partake of a considerable quantity of those foods rich in cellulose without exceeding the daily "calorie allowance" of foodstuffs.

THE FOOD TABLES

For purposes of ready reference, complete food tables, showing the constituent elements and other useful data, are presented in the appendix, and will afford the reader full information regarding every phase of nutritive and caloric values.

CHAPTER IV

FOOD VALUES, OR WHAT IS A CALORIE?

HOW many calories did you eat today? When it comes to answering that question, we are all quite like the “much-educated” little mother in a southern city who, after listening to my lecture one afternoon, gently tossed her poorly nourished, emaciated little baby into my arms and, throwing her own arms up above her head, cried out: “O Doctor, I’ve been through high school, through the university—I know Greek and I know Latin—but I don’t know a blessed thing about feeding that starved babe of mine! Why didn’t they teach me, during those years of study and training, some of the practical things of life?” And so it is—most of us know much more about some dead language than we do of the caloric value of the breakfast we ate this morning.

SUNLIGHT AND ENERGY

Sunlight was stored up in the ancient plants before they lay for centuries under water and subsequently turned into coal. Now, when we burn this coal, this stored-up sunlight is again liberated and furnishes the artificial heat of almost the entire world.

And so the energy which is today being stored up in the kernel of the grains, the juice of the fruits, and the fiber of the vegetables, is immediately utilized to supply the human body with both heat and energy when we use these various substances as our daily food. We burn food in the body just as the fireman burns coal in his furnace, and for the same purpose; viz., to develop heat and energy.

In the case of animal foods, we utilize sunlight which was first stored up in the plant world and then eaten by the animal; during which process the animal uses up a part of the energy in living his life, and the residue, which is stored in the animal's body, is available for food purposes. And this explains why animal foods must always be more expensive than vegetable foods; and also why they are not so highly nutritious as the grains, for instance, on which the animal was fed and fattened.

WHAT IS A CALORIE?

As a twelve-inch rule is a unit of distance and a pound the unit of weight, so a calorie is a unit of food value.

By means of a specially devised mechanism known as a "calorimeter" a definite weight—say one ounce—of every known foodstuff has been completely burned and the amount of heat given off carefully measured. This complete oxidation is called its

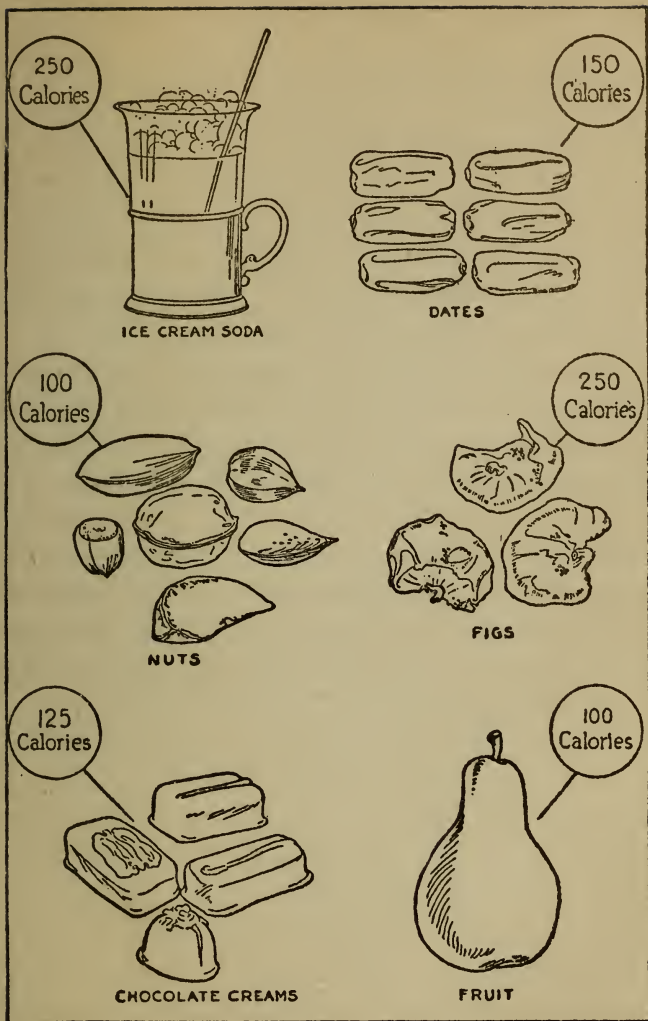


Fig. 1. Highly Nourishing Nicknacks

“heat of combustion,” and is taken as a measure of its stored-up energy or caloric value. It should be remembered that the “calories” of some foods are more digestible or available than those of other edibles; and represent therefore, different practical food values.

This heat unit is called a “calorie” and represents the amount of heat required to raise one pound of water about four degrees Fahrenheit (one kilogram, one degree centigrade). In making these observations an ounce of lean meat was found to contain 28.4 calories; an ounce of dried Lima beans, 102.4; an ounce of raw potatoes, 37; an ounce of wheat (raw), 105.6.

It is difficult for most of us to think about foods in ounces of raw “foodstuffs,” as we are so accustomed to think of foodstuffs as they appear upon the table, cooked, seasoned, and ready to eat. Accordingly, in order to give the reader a practical idea of the caloric value of foods, we herewith give a table showing the caloric value of various cooked, seasoned, and ready-to-serve foods—also indicating (roughly) the amount of each food which will provide about 100 calories of heat and energy. In this table the name of the food is given and that portion or portions named which will—roughly estimated—supply about 100 calories. The comparative caloric value of certain common foods is also shown in Figs. 1 and 2.

*Calorie Table of Cooked Foods**(100 calorie portions—approximately)*

1. CEREALS

Bread: brown, graham, white, or whole wheat	One ordinary thick slice
Bread, corn	Small square
Corn flakes	One cereal dish (level full)
Cornmeal mush	One large serving
Crackers: Graham, white, or oatmeal	Two large square crackers
Crackers: Ordinary soda various kinds	Eight round crackers
Farina	One serving
Graham gems or puffs.....	Three gems or puffs
Hominy, cooked	Large serving
Macaroni, cooked	Ordinary serving
Oatmeal mush	One and one-half servings
Rice, boiled	Ordinary cereal dish
Rice, puffed	Two servings
Rolls, Vienna	One large roll
Shredded wheat	One biscuit
Zwieback	One thick slice

2. FRUITS

Apple juice	One large glass
Apple sauce	Ordinary serving
Apples	Two small, or one very large
Apricots, cooked	Large serving
Bananas	One large
Blackberries, fresh	Two servings
Blackberry juice	One large glass
Blackberry sauce	One serving
Blueberry juice	Two small glasses
Blueberry sauce	One large serving
Cantaloupe	Half, or ordinary serving
Cherries, fresh	Two servings

2. FRUITS (continued)

Cherry sauce	One serving
Cranberry sauce	One serving
Dates	Four large
Figs	Two small, or one extra large
Fruit jelly	One ordinary serving
Grape juice	One small glass
Grapefruit (with sugar).....	One-half
Grapes, fresh	One average bunch
Lemonade	Two small glasses
Olive oil	One tablespoonful
Olives, ripe	Seven average olives
Orange juice	One large glass
Oranges	One very large
Peach sauce	Ordinary serving
Peaches, fresh	Three ordinary
Pear sauce	Ordinary serving
Pears, fresh	One large
Pineapple sauce	Two servings
Plum sauce	One ordinary serving
Plums, fresh	Three large (California)
Prune marmalade	Four tablespoonfuls
Prune sauce	Six large prunes
Prunes, dried	Three large
Raisins, stewed	One-half ordinary serving
Raspberries, fresh	Two servings
Raspberry juice	One large glass
Raspberry sauce	One ordinary serving
Strawberries (with sugar).....	One serving
Strawberries, raw	Two servings
Strawberry sauce	One serving
Tomatoes, breaded	Two servings
Tomatoes, canned	Four servings
Tomatoes, raw	Four average
Watermelon	One ordinary piece

3. NUTS

Almonds	About eight
Brazil nuts	Three, ordinary size

3. NUTS (continued)

Chestnuts	About twelve
Cocanut, prepared	Ordinary serving
Filberts	Ten nuts
Hickory nuts (large).....	About ten
Pecans	About eight
Pine nuts	About eighty
Walnuts, English	About six

4. VEGETABLES

Asparagus, cooked, creamed....	One serving
Beans, baked	A small side dish
Beans, Lima, green.....	One large serving
Beans, string	Five servings
Beets	Three servings
Cabbage, boiled	Four servings
Cabbage slaw (cream).....	Three servings
Carrots, creamed	Two servings
Cauliflower, boiled	Four servings
Celery, raw	About twelve average stalks
Corn, sweet, stewed.....	One ordinary serving
Cucumber, raw, sliced.....	Five servings
Eggplant, fried	Three servings
Greens, dandelion	Two large servings
Lettuce, salad	Five or six servings
Onions, cooked	Two large servings
Parsnips	Two servings
Peas, green, creamed.....	One serving
Peas, green, plain.....	Two servings
Potatoes, baked or boiled.....	One good size
Potatoes, mashed, creamed....	Small serving
Potatoes, steamed	One ordinary serving
Potatoes, sweet	One medium potato
Pumpkin, cooked	Two large servings
Spinach, cooked	Two ordinary servings
Squash, cooked	Two ordinary servings
Succotash, canned	One large serving
Turnips	Three ordinary servings
Vegetable oysters, stewed.....	Four servings

5. FLESH FOODS

Beef, boiled (average lean)....	Large serving
Beef, boiled (average fat).....	Small serving
Beef, loin (fat).....	Small serving
Beef, loin (lean).....	Ordinary serving
Beef, porterhouse steak.....	Very small steak
Beef, ribs, boiled.....	Small serving
Beef, sirloin steak.....	Very small steak
Chicken (broilers)	Large serving
Chicken, canned	Two thin slices
Goose (young)	Half serving
Halibut steak	Ordinary serving
Lamb chops, broiled.....	One small chop
Lamb, leg, roast.....	Ordinary serving
Mutton, leg, boiled.....	Large serving
Oysters, raw	One dozen
Pork, bacon, smoked.....	Small serving
Pork chops, cooked.....	Small chop
Pork, ham, boiled (fat).....	Small serving
Pork, ham, roasted (lean).....	Very small serving
Rabbit, cooked	Small serving
Salmon	Small serving
Trout (brook)	Two small servings
Turkey	Two small servings
Veal, leg, boiled.....	Large serving
Whitefish, broiled	Large serving

6. ANIMAL PRODUCTS

Butter, creamery	One ordinary square
Buttermilk	One and one-half glasses
Cheese, American	One and one-half cubic inch
Cheese, cottage	Four cubic inches
Cream	One-fourth ordinary glass
Eggs, boiled	One extra large egg
Eggs, large, whites.....	Two whites
Eggs, large, yolks.....	Two yolks
Milk, skimmed	One and one-half glasses
Milk, whole	One small glass

7. LEGUMES

Beans, baked	Small side dish
Beans, Lima, canned.....	Large side dish
Lentils, baked	One serving
Peas, dried, cooked.....	One large serving
Peanut butter	A little more than butter
Peanuts	Thirteen double

8. MISCELLANEOUS AND COOKED FOODS

Cake, chocolate layer.....	Half ordinary piece
Cake, gingerbread	Half ordinary square
Cake, sponge	Small piece
Cereal coffee, sugar and cream..	One cup
Cocoa, sugar and cream.....	One cup
Custard, milk	Ordinary cup
Custard, tapioca	Two-thirds serving
Doughnuts	Half a doughnut
Honey	Four teaspoonfuls
Malted milk	Two-thirds glass
Maple syrup	Four teaspoonfuls
Pie, apple	One-third ordinary piece
Pie, cream	One-fourth ordinary piece
Pie, custard	One-third ordinary piece
Pie, lemon	One-third ordinary piece
Pie, pumpkin	One-third ordinary piece
(An ordinary piece of pie is reckoned as one-fourth of a pie)	
Pudding, apple tapioca	Small serving
Pudding, "Brown Betty"	Half serving
Pudding, cornmeal	Half ordinary serving
Pudding, cream rice.....	Very small serving
Salad, beet	Two small servings
Salad, mixed fruit.....	Two or three servings
Salad, potato	One large serving
Soup, bean	Very large plate
Soup, cream of celery.....	Two plates
Soup, cream of potato.....	Ordinary plate
Soup, creamed corn.....	Ordinary plate
Soup, vegetable	Two plates

8. MISCELLANEOUS AND COOKED FOODS (continued)

Sugar, granulated	Three teaspoonfuls
Sugar, maple	Four teaspoonfuls
Tapioca, cooked	Ordinary serving
Toast, blueberry	Ordinary serving
Toast, cream	Two-thirds serving
Toast, fruit	Ordinary serving
Toast, gravy	Two-thirds ordinary serving
Toast, "Snowflake"	Two-thirds serving
Toast, tomato	Ordinary serving

Oz.	Cal.	
Butter	.....227.8	=====
Goose	.....137.	=====
Dates	.....101.5	=====
Bacon		
(lean)	... 98.3	=====
Beef fat...	96.3	=====
Figs	..... 92.4	=====
White bread	76.4	=====
Graham		
bread	.... 76.4	=====
Corn bread.	71.7	=====
Sweet po-		
tatoes	.... 58.2	=====
Eggs	..... 48.3	=====
Rice	..... 32.1	=====
Mashed po-		
tatoes	.... 31.8	=====
Bananas	... 28.8	=====
Beef (lean).	28.4	=====
Macaroni	.. 25.9	=====
Milk	..... 20.6	=====
Raw apples.	18.4	=====
Oatmeal		
mush	.... 18.0	=====
Oranges	... 14.9	=====
Oysters	.... 14.1	=====
Grapefruit..	13.2	=====
Cantaloupes.	11.6	=====
Lemonade	.. 11.4	=====
Radishes	... 8.7	=====
Turnips	.... 6.1	=====
Raw celery.	5.7	=====
Vegetable		
broth	.... 2.9	=====
Beef tea	... .8	=====

FIG. 2. TABLE SHOWING GRAPHIC COMPARISON OF THE CALORIC VALUE OF CERTAIN COMMON FOODS

CHAPTER V

IMPORTANT FOOD FACTS

THE chemical substances of which the body is composed are very similar to those of the foods which nourish it. From fifteen to twenty chemical elements are found in the body, among the most abundant of which are oxygen, hydrogen, carbon, nitrogen, calcium, sodium, phosphorus, and sulphur. The elements are so combined as to form a great variety of chemical compounds both in the body and in our food. The most important kinds of compounds in the body and in foods are protein, fats, carbohydrates, mineral matter, and water. The functions of these compounds in the food, as already explained in detail, are to build and repair the various tissues of the body and to supply it with heat and muscular energy. Water is one of the most abundant of these compounds. It forms over 60 per cent of the weight of the body of the average man, being a component of all the tissues.

ELIMINATION OF BODY WASTES

Metabolism consists in an up-building and a tearing-down process. After the food is all digested,

absorbed, and assimilated, having become a part of the body, then begins the work of tearing it down—of liberating its heat and energy—to be followed by its elimination from the body. The carbohydrates (starches and sugars) together with the fats, are completely burned up in the body and are then eliminated in the form of water and carbonic acid gas (CO_2). The proteins of nitrogenous foods are not so completely burned up in the body. The ashes which result from their combustion are not simple substances like the water and CO_2 of the carbohydrates. The protein ash is represented by a number of complicated substances, some of which are solid. When these “protein clinkers” accumulate in the body, they aid in causing many diseases, such as auto-intoxication, gout, headache, so-called biliousness, etc.

These “protein ashes” and “clinkers” are further acted upon by the liver—split up and sifted—and are finally eliminated by the kidneys in the form of urea, uric acid, etc. The body is ordinarily unable to store up proteins. When one eats more of this substance than is daily required to replenish the waste of the body, it must be split up immediately in the system and its irritating ashes carried off by the eliminating organs. The overeating of sugars, starches, or fats, is not such a serious matter, as they may be stored in the liver and subsequently used: and even if they are eaten in excess of what the liver can care

for, they accumulate as fat or add extra fuel to the fires of the body, their ashes being carried off in the form of such harmless substances as water and carbon dioxide (CO_2).

ANIMAL HEAT

The source of heat in the animal body was the subject of much superstitious speculation on the part of ancient scientists. It is now known that animal heat is derived from food by means of a peculiar process of vital oxidation effected, in the presence of oxygen, by the action of water and certain enzymes upon the food elements absorbed by the living cell. This process of oxidation liberates the heat and energy stored by the sun in the food, and thus the body is kept warm by this constant combustion of the digested foodstuffs. The starches and sugars together with the fats, represent food elements which serve as the body's fuel. By this means, man is able to maintain a constant body temperature of almost one hundred degrees.

The average human body produces enough heat every hour to raise two and one-half pounds of water from the freezing point to the boiling point. This is equivalent to boiling about seven gallons of ice water every twenty-four hours. Differently expressed, the body gives off each hour the same amount of heat as a foot and one-half of two-inch steam coil. This is the same amount of heat which would be produced by

burning about two-thirds of a pound of coal. The body consumes itself at the rate of one-eightieth of its weight every twenty-four hours.

In starvation, death occurs when the body has consumed one-half its weight. The fuel and energy value of the different food elements (water-free) is as follows:

1 gram of carbohydrates (starch or sugar)	4.1	calories or heat units
1 gram of protein.....	4.1	" " " "
1 gram of fat.....	9.3	" " " "

Expressed in terms of English weight, the fuel value of the three different food elements would be:

1 ounce of carbohydrates.....	127.5	calories
1 ounce of proteins.....	127.5	"
1 ounce of fat.....	289.2	"

It will be observed that fat contains more than twice as much heat as the carbohydrates. This is due to the fact that fat contains more carbon than either starch or sugar. Next to fats, starches and sugars are the most important fuel elements. Protein is a very extravagant form of food for fuel purposes. Proteins are the most expensive elements of human food. They are incompletely burned in the body, and inasmuch as they leave behind distressing and disease-producing ashes, it is clearly evident that only a sufficient amount of proteins should be eaten each day to supply the demand of the body for repairs. We

should depend upon the carbohydrates and fats for heat and energy.

A large part of our food is required to furnish heat to take the place of that lost by radiation from the skin and this is why children require more food than adults. They have a larger skin surface in proportion to their weight and therefore lose more heat by radiation.

One important difference between the human machine and the steam engine is that the former is self-building, self-repairing, and self-regulating. Another is that material of which the engine is built is very different from that which it uses for fuel; but part of the material which serves the body as a source of energy also builds it up and keeps it in repair. Furthermore, the body can use its own substance for this purpose. This the steam engine cannot do. The steam engine and the body are alike in that both convert the fuel into mechanical power and heat. They differ in that the body uses the same material for fuel as for building and also can consume its own material for fuel; and it is this latter fact which enables us so effectively to utilize physical exercise in the reducing régime.

BODY FATS AND CARBOHYDRATES

Fats occur chiefly in animal foods, as meats, fish, butter, etc. They are also abundant in some vegetable

products, such as olives, and cotton seed, from which they are expressed as oil; they also occur in considerable quantities in some cereals, notably oatmeal and maize (whole kernel), and in various nuts. In our bodies and those of animals fats occur in masses, under the skin and in other localities, and in minute particles scattered through the various tissues. The amount of fat in the body varies greatly with food, exercise, age, and other conditions. When more food is taken than is necessary for immediate use, part of the surplus may be stored in the body. The fat of food may thus become body fat; sugar and starch of food are changed to fat in the body and stored as such. When food supply is short this reserve material is drawn upon for supplementary fuel. Fat forms about 15 per cent, by weight, of the body of an average man. Well-fed or overfed people who take little muscular exercise often grow fat, but the tendency to fatness or leanness is more or less a question of personal idiosyncrasy or some other little-understood factor, and is not decided by food and exercise alone.

The carbohydrates include such compounds as starches, different kinds of sugar, and fiber of plants—cellulose. They are found chiefly in the vegetable foods, like cereal grains and potatoes; milk, however, contains considerable amounts of milk sugar, which is a carbohydrate. The carbohydrates form only a

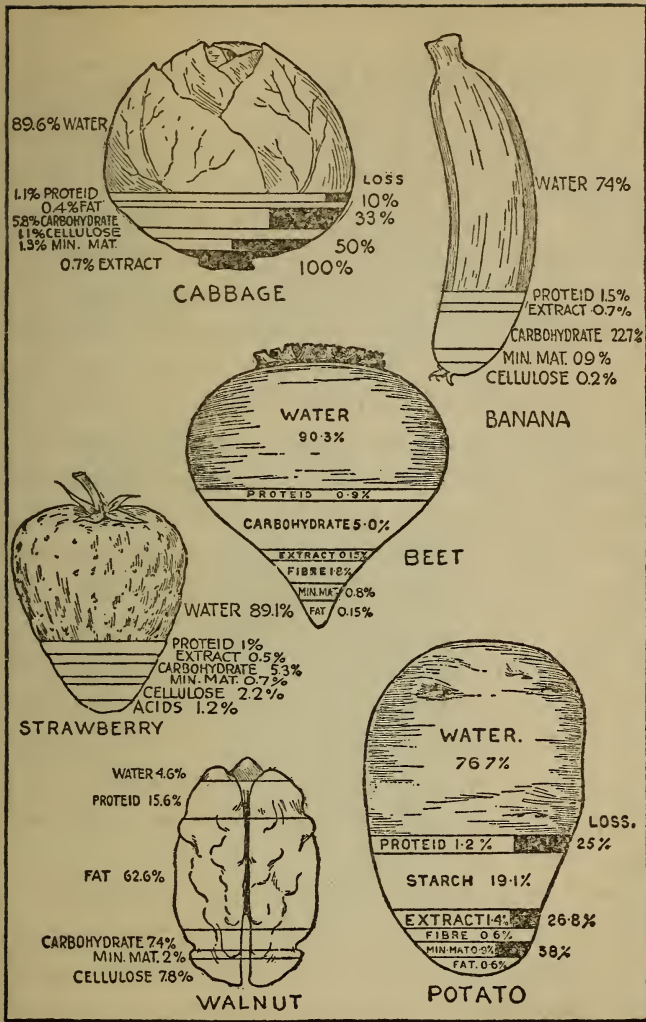


Fig. 3. Contents of Certain Staple Foods

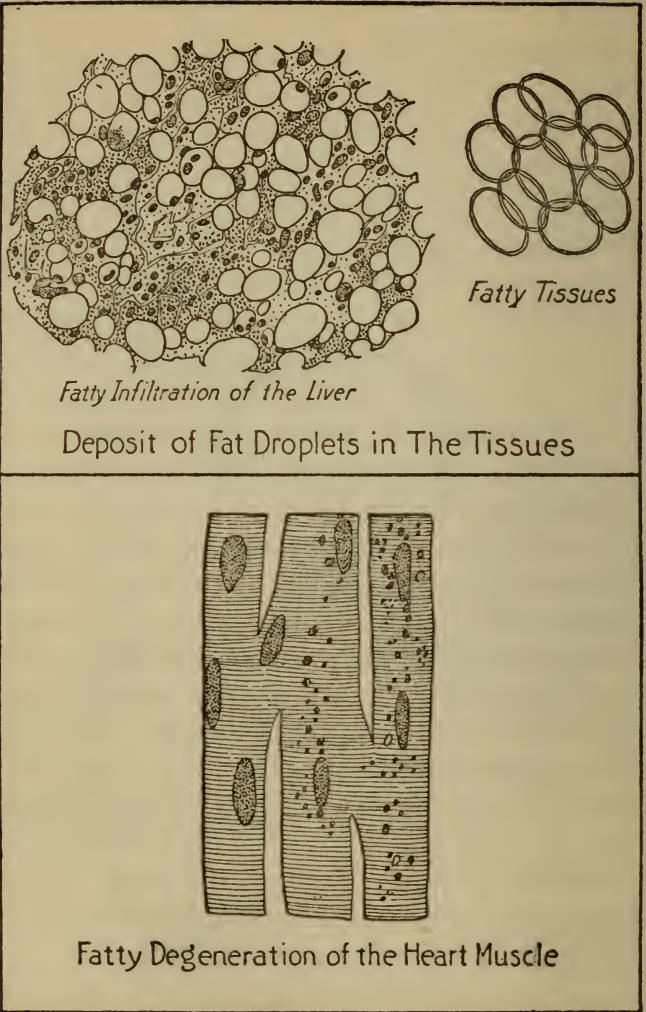


Fig. 4. Fat Transformations in the Body

very small proportion of the body tissues—less than 1 per cent. Starches and sugars, which are very abundant in ordinary food materials, are important food ingredients, because they form an abundant source of energy and are easily digested. They may be and often are transformed into fat in the body.

The contents of certain staple foods will appear at a glance by consulting the illustrations of Fig. 3.

CLOGGING THE MACHINERY

The condition of the body plainly depends upon the relation which it is able to maintain between the income and the expenditure of matter and energy. If the income equals the output, the body is kept in a condition approaching equilibrium; if the intake exceeds the outgo, the body adds to its capital of matter and energy; while if the expenditure is greater than the income, the accumulated capital is drawn upon; and this, if continued indefinitely, results in a drain upon the body bank which must eventually end in disaster—unless the individual is in need of reducing the bodily weight.

Obesity, in many instances represents a chronic overloading and clogging of the system as a result of habitual overeating and under-exercising.

Fat also appears in the body in connection with a diseased process known as “fatty degeneration.” This condition is particularly serious when it concerns the

heart, liver, and other vital structures of the body. By a very slow process, the muscular cells are replaced by fatty tissue and a more or less permanent and harmful substitution is thus effected. For illustration of both fat droplet deposit and fatty degeneration see Fig. 4.

ACIDIFYING AND ALKALINIZING FOODS

With the possible exception of fats and sugars, practically every article of one's diet contributes either directly or indirectly to acidifying or alkalizing (i. e., lessening the acidity of the blood). In order to enable the reader more fully to understand this important principle of scientific dietetics, we have arranged the following table of parallel comparisons, which will show at a glance what will be the final digestive outcome of the various foods—as regards the acidity and alkalinity of the blood-stream—i. e., to assist Nature in her efforts to modify and maintain the normal chemical reaction of the circulating fluids of the body. It is important that the blood-stream should not become too highly acid when reducing.

We have not listed a great number of individual foods, but the general classes noted will enable the reader easily to ascertain what group commonly used food belongs to and so be able to arrange the diet accordingly.

Table showing the end-products of digestion as regards the acidity and alkalinity of the "ash." Fats and sugars are practically negative and are therefore not included in this classification:

FOODS WHICH TEND TO ACIDIFY THE BLOOD

1. Animal foods: All forms of flesh foods, fish, fowl, etc., including all kinds of meat broths, soups, beef tea, bouillon, etc.
2. Eggs
3. Breadstuffs: All kinds of breads whether made of wheat, rye, or corn; crackers, toasts, griddle cakes, etc.
4. Pastries: All sorts of pies and cakes—except fruit pies and other desserts containing milk or sour fruits
5. Cereals: Rice, oatmeal, and breakfast foods of all kinds, including the flaked and toasted breakfast foods
6. Peanuts, plums, prunes, and cranberries. (Plums and cranberries fall in this column because of their benzoic acid, which the body cannot fully oxidize)

FOODS WHICH TEND TO ALKALINIZE THE BLOOD

1. Dairy Products: Milk, ice cream, cottage cheese, cheese, buttermilk, etc.
2. Potatoes and bananas
3. Soups: All forms of vegetable and fruit soups and broths
4. Fruit juices: All the fresh fruit juices (except plums)
5. Fresh fruits: All fresh fruits—sweet and sour—(except plums and cranberries); also muskmelons.
6. Vegetables: All kinds—especially beets, carrots, celery and lettuce.
7. Dried fruits: Figs, raisins, dates, currants—all except prunes
8. The legumes: Beans, peas, and lentils
9. The nuts: All the nuts belong in this column—including almonds and chestnuts

CHAPTER VI

THE DAILY FOOD REQUIREMENT

IT IS important that man should have a well-balanced ration. That is, his daily food should contain the proper amount of protein for the repair of the tissues, together with a suitable amount of starch, sugar, and fat to serve for the production of heat and energy.

As previously noted, the body is without power to store proteins if an excess of this element is eaten. The experiments of Professor Chittenden, of Yale University, have clearly demonstrated that the majority of civilized people are regularly eating more than twice the amount of protein required to nourish and sustain the body in a state of health.

THE "PROTEIN HABIT"

Why is it that the majority of civilized men and women habitually consume from two to three times the amount of protein required to replenish the broken-down tissues? The answer is found in the fact that when the human body is overfed on proteins, it acquires extravagant habits in this respect. It develops what is known as the "protein habit."

It learns how to dispose of this excess of protein and grows so accustomed to the influence of these nitrogenous ashes and elements in the circulation, that there is developed a sort of protein tissue-intoxication. There can be little doubt also that this extravagant protein habit is somewhat hereditary, being handed down from one generation to another among the races which are thus habitually overfed. This also probably explains why some of the Oriental nations can maintain such good health on such an extremely low protein allowance.

DAILY ALLOWANCE

The average adult requires a daily food supply which will furnish the body with from 1,800 to 3,000 calories. The size of the individual, the season of the year, the nature of his or her work, etc., are all concerned in the amount of food required to furnish the heat and energy needed for twenty-four hours. As a general rule, the average man or woman doing ordinary work in ordinary weather, will get along nicely on a daily ration which will supply about 2,000 calories. These 2,000 calories should be divided between different food elements about as follows:

1. Proteins 200 calories (about $1\frac{2}{3}$ ounces)
2. Fats 700 calories (about $2\frac{1}{3}$ ounces)
3. Carbohydrates (starch
and sugar) 1,100 calories (about 9 ounces)

To secure 2,000 calories as above outlined would require about 13 ounces of solid (water-free) food; but as our various food substances contain from 15 to 90 per cent of water, it will be necessary to use from 30 to 40 ounces of ordinary mixed diet foods to get 13 ounces of real solid, water-free food elements.

Of the total food supply about one-tenth should consist of protein; that is, one part of protein to about nine or ten parts of all the other food elements—starches, sugars, fats, salts, and cellulose.

GENERAL FORMULA

The following general formula (after Gautier) will enable anyone to find out the number of calories he should eat every twenty-four hours:

1. From your height in inches subtract 42. The remainder multiplied by 5.5 will give the number of pounds you should weigh, that is, the average person of your height weighs that much.

2. Your skin area is determined by your weight and height. (Average is 17 sq. ft.) The skin area should be multiplied by 80. Your weight (i. e., what you should weigh according to your height) is multiplied by 4.25. The sum of these two products gives the number of calories you require every twenty-four hours. For example: Take a man 66 inches in height and weighing 132 pounds, having a skin area

of 17 square feet. Multiply the skin area, 17 by 80—equals 1360. Now, multiply his standard weight (according to height) 132 pounds, by the factor 4.25—equals 561. Then add together these two products, 561 and 1360—equals 1921, the number of calories required every twenty-four hours.

Persons engaged in active or hard muscular work require more food than the average allowance; for such the weight of the body should be multiplied by the factor 7 instead of 4.25. In cold weather out-of-door workmen may require as high as 3000 calories a day to sustain the body.

Another method of estimating the daily protein requirement is as follows: One-eightieth of an ounce of protein is needed for each pound of body weight. This is equal to one and one-half calories per pound of body weight.

CHILDREN AND OLD AGE

Like all small animals, a child has a large skin surface in proportion to its bulk, and that means a relatively large heat loss. Further, a child is a growing animal; it has not merely to keep its tissues in repair, but has to go on adding to them, and that necessitates a relatively large supply of building material.

The amount of food required depends primarily upon the amount of skin surface, as food is principally needed to maintain animal heat which is chiefly

lost through the skin. A child has a much larger skin surface in proportion to its weight than has a larger person. For example, a child weighing 10 pounds has a skin surface of 3 square feet, while a man weighing 180 pounds or eighteen times as much, has a skin area of about 21 square feet, only seven times greater. The child of 10 pounds, then, requires about one-seventh as much food as a man weighing 180 pounds instead of one-eighteenth as much.

The dietetic requirements of old age are just the reverse of those of childhood. The assimilative power of the cells is on the wane and the bodily activities are restricted, hence less food is required. The danger of overfeeding the old is almost as great as that of underfeeding the young; an excess of nourishment chokes instead of feeds the flickering flame of life. Leanness and longevity, it has been remarked go together, and a man will only roll all the faster down the hill of life if his figure be rotund. After forty, excess flesh is a health liability.

WEIGHING THE FOOD

To be strictly scientific, the food for each meal is carefully weighed out on a pair of spring scales and this method of accuracy is carried out in institutional work; but it is not practical nor necessary—in the ordinary run of cases. The calorie tables of Chapter IV, together with the physician's instructions are

usually sufficient to enable the patient to work out his reducing schedule with very little difficulty.

The amount of energy required by the body varies, of course, with the season, with the weather, and with the amount and kind of work done. Hard, physical work and exposure to low temperature demands the largest food supply.

It should be stated, however, that a person whose occupation is indoors in an atmosphere the temperature of which is practically the same as that of average summer temperature, does not require more food in the winter than in the summer season, since his loss of heat is no greater. A person who perspires very freely, however, either when at work during the hot season out of doors or in a heated room at any season, requires practically as much food as one doing the same amount of work in a cold atmosphere, because of the large amount of heat carried off from the body by the evaporation of perspiration from the skin.

Of course, brain workers and other sedentary people, do not require anything like the amount of food which can be well taken care of by those persons who are engaged in hard, manual labor.

This chapter completes the preliminary discussion of foods and nutrition and we next begin the study of the practical problems of reducing the bodily weight in the various forms of obesity.

CHAPTER VII

THE PHILOSOPHY OF REDUCING

BEFORE taking up the practical details of reducing, it may be helpful to state some of the general principles which years of experience in the handling of many hundreds of obesity cases has taught the authors; and, incidentally, the reader may be both encouraged and instructed regarding the problems which his own case present.

FATTENING ANIMALS

Man is little different from many of our domestic animals when it comes to "fattening." When overfed many people readily fatten, and this excess of adipose tissue is stored away in every nook and cranny of the human body.

Of course, the original purpose of Old Mother Nature was to provide for a food storage or reserve against the days of famine or other periods of relative food scarcity. While putting on fat is a normal function of the body, every obese person should also understand that taking off fat is a perfectly natural and physiological process—that there are no real dangers associated with reducing weight in accord-

ance with the well-known scientific principles which govern the reducing régime in the hands of competent and experienced physicians. The putting on of fat in times of food plenty is the first step in storing up fuel and energy, and the taking off of fat—reducing—is merely the second and perfectly natural step in using up this previously stored-up fuel.

In fact, in the animal world when Nature has her way, stored-up fat is always later consumed. Only in the case of animals being fattened for slaughter, and men and women who continually overeat—is fat piled on from one month and one season to the other. And in this connection it is well to bear in mind that all domestic animals are always more or less delicate in their general health whilst being fattened by forced feeding. Overfeeding is decidedly bad for the liver and the kidneys.

HEART AND KIDNEY CASES

We do not find it in any way dangerous to reduce heart and kidney cases—when it is properly done, under medical supervision. In fact it affords the greatest imaginable relief—especially to sufferers from heart trouble—to be able to get rid of some of their superfluous fat. Reduction of weight directly reduces the amount of work which the heart has to perform. The more work the muscles have to do in moving and transporting the body, the more work

the heart has to do in pumping the blood through the working muscles.

Even in cases of high blood-pressure, the reducing program can be carried out without danger—in fact, the pressure usually begins to come down right along with the reduction in weight. At least, it is not raised by a suitable reducing régime. Under no circumstances should a sufferer from heart or kidney disorders undertake the home management of their reducing treatment. Such a course might easily result in disaster.

Another fallacy is that it is dangerous to “reduce during the change.” The climacteric is in no way a contraindication to the reduction of bodily weight.

It often happens that, during a course of treatment for obesity, patients have occasion to consult another physician about some matter, and they come back to us reporting that the other doctor thought they were under-nourished—or looked badly, etc., and so they are considerably disturbed over their condition. It is a fact that many patients do show more or less pallor during their reducing treatment and this leads to the situation just stated; but this should never lead to any interruption of the course undertaken as this pallor will disappear in a few days after the treatment is over and the patients return to normal diet.

INTAKE AND OUTPUT

It must be remembered that the very *basis* of reducing is to:

1. *Decrease the food intake*
2. *Increase the food output*

All the treatments herein noted — and recommended — (except physical exercise) are only of permanent value in just so far as they help in cutting down the food intake or assist in burning up the stored food elements in the body and hastening the elimination of the resultant waste products from the body. The backbone of the reducing régime is:

1. *Decreased eating*
2. *Increased work*

The great danger connected with increased work (provided the diet is not rigidly regulated) is that increase in bodily exercise is nearly always accompanied by a great increase in appetite; and so directly — in this way — increased physical work has a tendency to lead to increased eating.

HUNGER-APPETITE

Let us clearly state — and emphasize — that patients suffer practically no hunger in carrying out the reducing régime, at least they do not notice hunger beyond the normal degree after the first day or two. Of

course, we refer to hunger after meals—the feeling that you have not had enough to eat—and not to that normal and natural hunger before meals which we all should have and which we commonly refer to as a “good appetite.”

Hunger is now known to arise from the muscular contractions of the stomach. Appetite is not an infallible guide to the need of nourishment. Most of our appetite is simply “habit hunger”—the stomach finds itself empty—deprived of its accustomed filling-up meal, and sets about vigorously contracting; and these contractions are registered in our consciousness as hunger.

There is no doubt but that food is digested and assimilated differently by different individuals. Even the same patient will vary somewhat from day to day—according to the weather, the nervous state, etc., and so, while the progress of reduction can be based on body weight and numerous other settled and precise factors; nevertheless, these variations of personal behavior demand a constant, intelligent, and flexible supervision in order to yield the maximum of results with a minimum of danger and inconvenience to the patient.

SWEATING BATHS

There has been much discussion—pro and con—regarding the value of sweating baths as a reducing

measure. While the sweating baths (especially the electric-light bath) are of great value in carrying out a reducing régime, they are not indispensable, in fact, they are not directly concerned in taking off flesh. The sweat bath does seem to reduce one—as the scales will show an actual loss of from one to two or three pounds during a single bath—but this loss in weight is only temporary and consists in loss of water. As soon as you drink, it is all gained back; but the sweat bath is of real value as a preparatory procedure to the use of cold water—and cold water is a real remedy in obesity, due to its ability to lower body temperature and thus increase oxidation of fat in the effort to restore the body temperature to normal. The cold bath is thus able to produce a sort of artificial winter climate with a corresponding increase in fuel consumption.

We have sometimes thought a sweating bath *alone* might even lessen heat loss and it is our custom to employ it always in connection with cold douches and other procedures fully described in subsequent chapters.

In the case of obese patients suffering from dropsy, the sweat bath is doubly valuable as it is also in the case of those who wish to show a certain weight on a certain day for some special purpose. The whole question of baths in relation to reducing will be fully considered in a later chapter.

MASSAGE AND VIBRATION

Massage has a reputation for reducing fat, but careful observation over a long period of years has led us to believe that most of this reputation is without scientific foundation. It would be fine indeed if fat could be "rubbed" off and "pounded" off, but it can't be done. We do recognize—and so employ it—that massage and mechanical rollers can be used to advantage in the effort to reduce some special part of the body (such as the trunk and hips) and our belief is that it thus works by increasing the local circulation and metabolism. Of course, massage as a substitute for normal physical exertion in sedentary or inactive persons is of great value—and in such an event is a very valuable part of the reducing treatment. But more about massage later.

The use of sinusoidal electricity is of great value because it sets about causing the muscles to do real work and should not be confounded with ordinary applications of electricity which in no way influence fat reduction.

THE WEEKLY ROUND-UP

At least once a week the patient who is carrying out a "home régime" should see the doctor to report progress, be weighed, and secure revised instructions and diet modifications. It is not desirable that weight should be decreased too fast, and the only way a treat-

ment like this can be carried through successfully and without danger to the patient, is to keep in close touch with an experienced adviser.

It is to be regretted that some persons are so "penny wise and pound foolish" that they will take a prescribed course which has been arranged for some other member of the family or for some neighbor, and undertake to carry it out in their own behalf without further advice or modification. We advise—even in carrying out the home régime recommended in this book—that you put yourself in the hands of a reliable physician for personal advice and detail guidance while carrying out the treatment. We sometimes hear that our treatment has failed—but on investigation we learn that we had never seen the patient.

THE MEAT DIET

We cannot condemn too vigorously the so-called "Banting Treatment"—a régime based on an almost exclusive meat diet. We have observed the disastrous working of this high protein diet in a number of cases and strongly advise against all efforts to reduce weight on a long-continued protein diet. Such a treatment may show a rapid loss in body weight, but it should be remembered that we do not desire a rapid loss in weight—but a *slow*, continual, and safe loss—a loss in fat without endangering the integrity of the kidneys.

WATER DRINKING

Most persons breathe a sigh of relief when informed that they may take water or mineral water in any quantity during the reducing treatment. The fear of thirst obviously prevents many from attempting an obesity cure. Many persons cannot be brought to believe that fat can be lost without suffering thirst, and some persuasion is often needed to convince them of the complete untenableness of the opinion that water is one of the most dangerous fattening agents. This belief is general, although the most experienced physicians in this field, as von Noorden and Ebstein, combat it as a superstition exactly as we do. As the last-mentioned author has ascertained, the prescription to bring about a reduction by non-drinking goes back to Pliny the Younger, while a French physician, named Dancel, sought to cure complicated and uncomplicated obesity by thirst treatment in the sixties of the past century.

It may occur that, on account of other ailments which exist along with obesity (cardiac defects with oedema, contracted kidneys), a restriction of the supply of liquids must be recommended; but then it is the complication, not the obesity, which leads to water restriction, and the restriction never exceeds the modest measure which at other times is appropriate in these affections, and hence never reaches such proportions as to warrant mention of a thirst treatment.

We do not even restrict our patients in the use of water at mealtime—provided there is no other reason for so doing. *We allow the reducing patient to drink all the water he wants.*

Water drinking is a real pleasure to the average individual, and we study to take away as few pleasures as possible in carrying out a course of reducing treatment.

HEARTBURN AND VOMITING

There is very little trouble with digestive disorders when the patient is careful to carry out the directions in detail—and practically never do these symptoms appear in the case of a patient who is under medical supervision.

Another fear which should be destroyed is that dread of “wrinkles” and skin folds which troubles so many fat women. When the reduction is gradual—especially if a moderate amount of facial massage is had—there can seldom be detected the slightest evidence of skin wrinkling.

DRUGS IN REDUCING

The use of drugs for reducing purposes is decidedly dangerous. The long-continued use of saline cathartics; the use of thyroid preparations and other drugs designed to produce a loss in flesh should be looked upon as of doubtful value and should never be undertaken without expert counsel and advice.

Obesity is a part of myxedema. In contrast to this, in Basedow's Disease (exophthalmic goiter) an affection referred to by many authors as over-functioning of the thyroid, we find, among other things, emaciation. These experiences and observations have probably led to the trial of thyroid preparations as a remedy for obesity. The countless antifat pills and tablets manufactured, especially in this country and France, and often highly puffed up, usually contain thyroid preparations. But not always; there are also quite harmless cathartic pills and teas to which the inventors (without grounds) ascribe the power of effecting a reduction in weight. The manufacturers of remedies to be used externally, salves, soaps, etc., make still greater demands upon the gullibility of the purchaser.

There is no doubt that a reduction in weight can be gained by using thyroid extracts. They are employed and recommended by many experienced physicians, especially for cases which do not yield to dietetic treatment. Very many of our patients have tried, besides other remedies and methods, these thyroid extracts. The general verdict is decidedly against this class of obesity cures.

LAXATIVES AND PURGATIVES

The purgatives deserve a place of their own in this discussion. To the lay mind there is nothing simpler than to bring about a reduction with purgatives. Fat-

tening arises from too much material being introduced into the receiving end of the digestive apparatus. If, now, it could be brought about that more than usual should be expelled through the discharging opening—the excess diet would be thus compensated; and, upon further forcing of the excretions, a decrease in the size of the body, therefore reduction in weight probably would be obtained. The effect might also be proved scientifically. The remedies hasten the passage of nutriment through the intestines and thereby prevent, perhaps, good assimilation. If, however, nourishment is badly assimilated, then under-nourishment results, and gradually reduction must make its appearance.

The purgative régime can—in the end—be productive only of evil, resulting in serious disturbances of the digestive canal and otherwise jeopardizing one's health and efficiency.

THE FASTING FALLACY

Recently fasting fads have also been recommended for reducing purposes. They are a fallacy. Fasting may be beneficial for a few days in the case of an overfed individual; but just as soon as the stored-up glycogen of the liver is exhausted then the fasting patient starts in to live upon himself—an exclusive flesh diet—and at that, his own flesh. Now, it is a well-known fact that an exclusive meat or flesh diet

is highly toxic and exceedingly injurious. Further, when the white blood cells—our standing army of the interior—are deprived of glycogen (liver sugar) and hence are in a state of partial starvation—they prove to be poor defenders of the body against disease. You are much more liable to contract any passing contagious or infectious disorder when fasting. On the other hand, the reducing diet provides you with a safe, sure, and scientific method of reducing weight without any of the dangers attendant on wholesale fasting and other pernicious dietetic fads.

SURGICAL TREATMENT OF OBESITY

In those cases where such a large amount of fat collects on the abdomen—where an enormous apron of fat forms—it is becoming more and more the practice to remove a greater portion of this fatty apron by means of a surgical operation. It is not uncommon to remove from twenty-five to forty pounds of superfluous fat in this way. Of course, such a procedure is not to be recommended for an ordinary case of obesity. But in certain cases it saves a long and tedious régime by getting rid of the chief accumulation of fat in a few short moments; the anatomical figure is, of course, also wonderfully improved.

THE PSYCHOLOGY OF REDUCING

Determination and settledness of purpose are the foundations of success and triumph when it comes to

the valiant fight against one's weight and one's flesh—and all that goes with the bothersome handicap of obesity.

One of the early lessons which the "reducer" must learn is to keep out of temptation; for it is true that appetite is partly suggestive—psychological. The odor of food stimulates hunger; the sight of a nicely set table with daintily served food sharpens the appetite.

Look all these facts in the face and make up your mind to master your appetite—make no provision for compromise or failure. Recognize that very many of our eating and drinking practices are more or less merely habit; formulate your thinking along the lines you propose to follow—along the lines which are helpful to your reducing régime—and assert the fact to your own mind and appetite that you are *master*.

To conquer appetite and thus to control one's eating constitutes the highest form of self-mastery.

Eating is largely a habit—and one can acquire the habit of eating those things which are best for them—those things which do not directly contribute to making one fat.

Gluttony is a real vice, and as such it should be shunned and finally overthrown by temperance in eating and moderation in satisfying the appetite.

After all—be cheerful about it. Look into the near future and see yourself growing thin. Imagine

yourself once more free, and active; and finally rid of your burden of fat. Remember that the mind exerts a powerful influence over the body. Quit this eating breakfast in bed—stop the indolent indoor life—discontinue the afternoon naps, and start to work in dead earnest—enthusiastically—to win your fight of faith against the fear of flesh.

CHAPTER VIII

THE PRELIMINARY EXAMINATION

IT HAS long been our custom, before subjecting the average individual to the reducing régime, to give the patient a careful medical examination—a research of sufficient thoroughness to acquaint us with the exact facts regarding the physical, nervous, and metabolic condition of our reducing candidate.

GENERAL PHYSICAL CONDITION

The patient is not only weighed and measured, but is given a careful physical examination—including a testing of the heart and lungs, together with a complete investigation of the nervous system, the muscular system, and the digestive and circulative machinery.

The findings of a careful physical examination afford much to guide us in the planning of a suitable reducing program for each individual case.

This preliminary examination serves to show just about how fast it will be advisable to let the patient proceed in following out the course prescribed and also serves to indicate the special dangers existing—if any do exist—and what precautions should be taken to

avoid trouble in carrying out all the many details of the reducing régime.

BLOOD TESTS

The patient's blood is examined from every angle. The hemoglobin (iron in the red cells) is measured and estimated in percentage—normal being reckoned at 100; special precautions must be taken when the hemoglobin is 80 or under.

The red and white cells are counted, and the different kinds of white cells are ascertained as indicating something of the patient's vital resistance—ability to meet and overcome accidental microbial infection, etc.

As a rule, we do not find much trouble with the blood in obese subjects, but sometimes more or less anemia is present, and it is important to possess reliable information regarding these important matters before undertaking a more or less strenuous reducing campaign.

URINE EXAMINATION

A complete chemical and microscopical examination of a twenty-four-hour specimen of the urine should be made in every case before starting out on the job of taking off flesh. This test should also include the special testing for "acidity" of a fresh, single specimen of the urine. When the "acidity" is high, say fifty degrees or above (the normal is about thirty de-

grees), it is often advisable to put the patient on a special "alkalinizing" diet for a few days before starting the reducing régime.

In cases of kidney trouble of any sort, it is highly undesirable for the patient to undertake the reducing régime without medical advice and supervision.

The urine also sheds considerable light on bowel elimination when it shows the presence of "indican"—a substance not found in normal urine.

The physical examination taken together with the blood and urine findings constitute the foundation for the further study of the details of the patient's fitness to undergo the reducing ordeal—if it may be called such—in view of its utter lack of all suffering and hardship.

BLOOD-PRESSURE

The next step in looking over our prospective "reducer" is to study the blood-pressure. We find a great many sufferers from obesity also afflicted with more or less high blood-pressure.

As already noted, a reduction in weight is nearly always accompanied by a reduction of blood-pressure. It is sometimes necessary to take into account the matter of high blood-pressure in the early days of a reducing régime and make special provision for its proper treatment in connection with the regular reducing procedures.

OTHER SPECIAL TESTS

It is not possible to know too much about a person you are going to "reduce." Accordingly, we welcome the opportunity of giving the candidate as complete an examination as possible, and the items herewith mentioned merely represent a *minimum* of examination which is regarded as prerequisite to starting treatment. Among other special tests which it is advisable to make are the following:

Carbonic Acid Test: This test is carried out by breathing into a rubber bag and testing this air to ascertain the amount of CO_2 gas present. This is a better test for "acidemia" than testing the urine for acidity.

Home Acidity Test: If patients desire to test their own urine for acidity with a view of its being an indicator of systemic acidity, they can do so by carrying out the following régime: Test the urine when passed with litmus paper—the normal urine being acid will turn the blue litmus paper red. Now take a rounding teaspoonful of ordinary baking soda dissolved in half a glass of water, and in exactly three hours test the urine again with the litmus paper. If you are normal as regards your "acidity"—the urine will be alkaline three hours after taking the soda—and so will turn the red litmus paper blue. If it does not, take another teaspoonful of soda, and test again in three hours. Repeat this until you do get an alkaline test in the

urine. In bad cases of "acidemia," it sometimes takes a dozen or more doses of soda to give the desired result.

Special Blood Tests: Special examinations of the blood are made to ascertain the amount of sugar present—also the quantity of nitrogen (protein) matter which is present in the blood. These and numerous other special investigations which are important in certain cases are not necessary for the vast majority of individuals.

Bismuth Meal: In all cases of chronic constipation in connection with obesity, we like to give the patient the so-called "Bismuth Meal" and thus place ourselves in a position to study, by means of the X-ray, the whole digestive tract—from one end to the other. This sort of an investigation puts us in the way of being able intelligently to prescribe for constipation as well as obesity; and sometimes it is just as desirable to cure the one as the other.

The X-ray has revolutionized our knowledge of, and treatment for, chronic constipation—but more about this in a later chapter.

Vasomotor Tone: As a preliminary to the hydrotherapy of the reducing régime—the baths, etc.—the patient's blood-pressure in the standing, sitting, and lying positions is taken—after moderate exercise also—and these findings, together with the results of the "ice-water test" on the skin, furnish the data

for computing the percentage of the "Vasomotor Tone," and when this is below 75 per cent—special precautions must be taken when it comes to the administration of cold baths and other sudden shocks to the circulation.

Strength Test: This consists in measuring the strength of each group of muscles by means of the Universal Dynamometer. This will show in a most striking manner the gains from time to time, if repeated, in muscular strength, which appear hand in hand with the progress of the flesh-reducing régime.

We know now that our candidate is in fit condition to begin reducing—our examinations are supposed to have shown him or her to be in a fairly normal condition—and so, in the next chapter, we will start right out on the first step of this delightful path which so certainly and pleasantly leads to "getting thin."

CHAPTER IX

GENERAL REDUCING RULES

FAT in the body represents inert material stored up mainly for nutritive purposes; hence, in hunger it is used up largely and serves to protect more important tissues. Thus, experiments have shown that in long periods of fasting, adipose tissue may be consumed to the extent of 97 per cent of the total amount present, while the heart and nervous tissue will not lose over 3 per cent of their tissue substance. During this period of flesh reduction, we advise that the habits of life be regulated in accordance with the following general rules—the details being prescribed according to the needs of the individual:

1. *Play the Game:* Be sure that you understand just what your doctor wants you to do, or just what you aim to accomplish. Weigh yourself not less than once a week on the same scale. Play the game—live up to the rules.

2. *Mastication:* Thorough mastication of your food is essential to good digestion, but we are not at all desirous that fat folks should become interested in “Fletcherizing” their food. The more you chew your food, the more of it will be digested. We ad-

wise that you simply give the food a good, everyday mastication.

3. *Undereating*: The fundamental underlying principle of reducing is all expressed in the one word—*underfeeding*. Carry out your diet régime faithfully and conscientiously.

4. *Your Dietary*: Remember—you will be told that certain foods are non-fat producers—that you may eat quite freely of them; stick to this dietary and leave entirely alone those fattening foods which you find on the forbidden list.

5. *Number of Meals*: There is a great difference of opinion regarding the number of meals per day to be eaten during a reducing campaign. We think a great deal depends on the personal habits and inclinations of the patient. Many do well on three, four, or even five small meals; others do best on practically one meal a day. The latter method has the advantage of enabling you to “fill up” in old-fashioned form at least once a day. The calories for the day are prescribed—and it makes little difference whether this given amount of food is eaten at one sitting or five—let the patient’s personal preference decide this question. The majority do best on two meals a day.

6. *Your Appetite*: If you have a normal appetite, you will not suffer much hunger while reducing; if you have an abnormal appetite—resolve to curb and control it. It is not necessary to eat until one is dis-

tressed in order to appease natural and normal hunger.

7. *Too Much Sleep*: Don't sleep too much while reducing. Take six or seven hours of rest—no more. Keep bright and active, and spend little time in bed—unless advised to do so by the doctor because of organic disorders which may complicate your reducing program.

8. *Exercise*: Take exercise regularly. Walking is possible for everyone, and it is one of the best exercises in the world; after that, swimming; both of these exercises bring every muscle in the body into play, and make and keep your figure slender. Horse-back riding, rowing, and golf are also good forms of physical exertion for "reducers."

9. *Clothing*: Clothe yourself comfortably and sensibly. Do not wear tight shoes nor tight corsets, nor tight clothes of any kind. Especially do not tighten the neck in any way; it impedes circulation. Wear common-sense and seasonable clothing.

10. *Home Treatment*: Carry out your home instructions to the letter—don't neglect an item without having a good reason for so doing—and even then, report the fact to your doctor. Take your baths or other home treatment just as instructed.

11. *Blood-Pressure*: As already has been suggested—no person with a high blood-pressure (and, for that matter, a very low blood-pressure would be almost as serious a condition to trifle with) should

undertake a reducing régime except when under close medical supervision. Such cases require the simultaneous treatment of obesity and high blood-pressure. These cases can be reduced without danger, and the blood-pressure is nearly always favorably affected by a scientific and gradual reduction in weight. Don't be afraid to reduce because your blood-pressure is high; only see that you are in competent hands while the procedure is being carried out.

12. Reducing Treatments: If you are following out the Institutional régime and under a physician's supervision, remember that there is a definite reason or purpose for each procedure ordered in your case, and so, whether it is the Bergonie chair, the roller reducer, the sinusoidal exercise bath, the electric-light bath, or the Scotch shower and douche — take it regularly and faithfully. Success comes quickly to those who diligently and intelligently carry out every detail of their individual régime.

13. The First Week's Loss: An extremely large majority of patients take up this treatment after a period of excess nutriment. On the previous days and also on the day of the beginning of the treatment, they have consumed much greater quantities of solid and liquid food than they will on the days of the treatment. The contents of the stomach and intestine are therefore much more abundant and heavy at the first weighing than after the expiration of the

first days of treatment, during which the excess liquid and the food residues from the "pre-treatment" period have been expelled. The decrease in weight in the first week of treatment consists of two factors: the loss of fatty tissue, and the difference in the weight of the stomach and intestinal contents—and these latter items may amount to several pounds.

The second week's recorded weight gives us the first information about the real effect of the treatment. The attention of the patient, who is delighted by the great success of the first week of treatment, must be called to the fact that the good work cannot continue at the same rate. They must also avoid the deduction that, because the first week has proved a great success, they are entitled to increase the diet. The patient reflects about his case, and contrary to the doctor's prediction as to the slight gain for the next week, arrives at the conclusion that one need by no means be so particular about following the diet prescription, since the first week brought such a very large loss of weight. The patient thinks that a decrease of three or four pounds will probably take place even with a somewhat more abundant diet. Result: at best, a standstill in the weight; generally a slight increase.

Many patients attempt, earlier or later, to determine whether the continual decrease in weight is not an accidental coincidence with carrying out the régime and whether it is really necessary to stick absolutely

to the diet directions. They commit transgressions which they consider harmless. - The next weighing teaches them better. Scientific principles govern the whole reducing program and increasing success comes only to those who are reasonably faithful and intelligent in carrying out the instructions provided.

CHAPTER X

FOODS FOR FAT FOLKS

IF YOU have an individual prescription for your diet—follow it. If you are looking for “reducing menus” you will find them in the next chapter. This chapter is devoted to a general list of foods which are low in fats and carbohydrates and which are, therefore, the ideal diet of the reducing régime.

1. *Your Daily Ration:* Obese people should eat just about one-half the quantity of food they have been in the habit of consuming. They should cut their daily ration down at least 50 per cent. It matters little what you eat if you consult the food tables and limit yourself to the number of *calories* allowed you. Average obese persons should limit their daily ration to about 1,000 calories. *Calories* are the important thing. It matters not what you eat if you do not eat more than 1,000 calories—or the number ordered for you. Neither does it matter whether you eat one meal a day or four—or two or three meals.

2. *The Monotonous Diet:* If you find any trouble in satisfying your hunger on the food allowance designated, you can help considerably by going on a monotonous diet—that is, eating only two or three

things. Take all of your calories from one or two articles on the following General Monotonous Diet List: Buttermilk, gluten bread, eggs, lean meat, vegetable broths, gluten mush, sour apples, oranges, celery, tomatoes, and greens.

3. *Water Drinking:* Drink all the water you want — at least within reason — or up to five or six glasses a day. We do not look with favor upon any reducing plan which undertakes to take off flesh by limiting the water intake much below the average daily requirement. Flesh lost at the cost of water starvation is at too great and dangerous a price. Liquid foods may be restricted to advantage, but not water drinking.

4. *Foods Permitted:* The following foods are permitted. You can eat about all you wish of these articles of diet without exceeding your calorie allowance. These foods are low in caloric value (most of them) and as long as you stick to the list, you can eat to your full satisfaction.

A. **FRUITS:** All fresh, stewed, and canned fruits except bananas, figs, dates, olives, and raisins. Cooked fruits should be prepared with little or no sugar. (Saccharin may be used.) Eat apples (preferably sour), blackberries, blueberries, cherries (preferably sour), cranberries, currants, cantaloupes, gooseberries, grapefruit, grapes (sour), lemons, nectarines, oranges, peaches, pears (preferably the non-sweet ones), pine-

apples, plums, prunes (unsweetened), raspberries, strawberries (unsweetened), tomatoes, watermelons, and whortleberries.

B. VEGETABLES: The majority of the vegetables are permitted either raw, cooked, or canned—except potatoes (Irish and sweet), beets, green peas, green corn, green Lima beans, carrots, squash, and fried eggplant. Vegetables should not be eaten fried or with cream sauce. The following vegetables are permitted: Artichoke, asparagus, string beans, cabbage, Brussels sprouts, sauerkraut, cauliflower, celery, cucumbers, greens, lettuce, mushrooms, onions, parsnips, pumpkin, rhubarb, radishes, spinach, turnips, eggplant, oyster plant, and salads of permitted vegetables—no mayonnaise dressing.

C. CEREALS: As a class, the cereals are forbidden fruit—they should all be avoided, except, perhaps, a small quantity of the following now and then: Hard breads or graham bread—small quantity, gluten mush and gluten breads, small portion of hominy. Avoid all the rest of the cereals, breakfast foods, breads, and pastries. All nuts, except pecans, pine nuts, and Brazil nuts may be eaten; while the dried legumes—such as beans, peas, and lentils—form the foundation for excellent meat substitutes, and may be eaten in moderation.

D. DAIRY PRODUCTS: Eggs—poached or boiled—are permitted occasionally. Buttermilk, skim milk,

cottage cheese, and skim-milk cheese are also permitted. Avoid butter as you would sugar.

E. FLESH FOODS: Most of the meats—except the fat meats—can be taken in moderation and within the daily calorie allowance, such as: Fish (boiled or broiled), lean beef, broiled steak, chicken and other fowl (except goose), lean mutton, ham, most wild game, oysters, and lean bacon if excess fat is broiled off. Do not eat fried meats. Avoid veal and pork. The fatty fishes—such as mackerel, eel, and salmon, should be used sparingly.

F. LIQUID AND MISCELLANEOUS FOODS: All thin vegetable soups are permitted—such as bouillon. Tea and coffee—without sugar and cream; mineral waters, fruit ices, and slightly sweetened lemonade are also allowed. Chocolate and cocoa are to be avoided. (Saccharin—in moderate amounts—may be employed to sweeten foods in place of sugar.)

Von Noorden concludes that restriction of fluids should only be insisted upon when the following indications are present:

1. Weakness of circulation. A dry diet is advisable here for the sake of the heart, apart altogether from the obesity.
2. At the commencement of my "cures." Here the initial loss of weight which the restriction of fluids brings about is calculated to make a great mental impression on the patient.
3. In cases where the restriction results in a diminished appetite for fat-forming foods.
4. Where sweat secretion is excessive. He considers that the total amount of fluid allowed should not be reduced below $2\frac{1}{2}$ pints per day.

This, then, is the story of the foods which are poor fat producers—foods which enable the fat person to eat the most and at the same time reduce the most. It is a fact that such a diet will enable the average person fully to satisfy the appetite, while at the same time the reducing proceeds at a slow but unerring pace.

This list has been constructed with a view to showing the reader what to eat—only casual mention being made of those special articles of diet—the most important—which are to be avoided. In order to make this matter doubly clear, we next present a list of the additional fattening foods which—as a class—must be discarded by all who would woo and win the sylphlike form.

FORBIDDEN FOODS

The reader should bear in mind that these foods are placed on the “forbidden list,” because they are so rich in calories—especially so in comparison to bulk—so that one can eat a thousand or so calories without in any way satisfying the appetite. Foods on this list may be eaten if the caloric allowance is not exceeded. In fact, in the menus which follow—for sake of variety—now and then a limited portion of some food on the general forbidden list will be found.

I. *Fruits:* Bananas, figs, dates, raisins, ripe and

green olives, the over-sweet fruits, such as sweet pears, persimmons, pawpaws, and sweetened stewed fruits — except for the smallest amount of sugar or saccharin.

2. *Vegetables:* All fried vegetables or vegetables served with cream sauce or salads served with oil dressings; also sweet potatoes, Irish potatoes, beets, green peas, green corn, green Lima beans, green shelled beans, carrots, squash, and fried eggplant.

3. *Cereals:* All foods rich in starch are prohibited, including all cereal foods, breakfast foods, macaroni, mushes, breads, crackers, biscuits, cakes, pies, and other pastries and puddings; arrowroot, sago, corn-starch preparations; together with the nuts and legumes — dried peas, beans, and lentils.

4. *Dairy Products:* Avoid butter (except a trifle for seasoning), lard, butterine, rich milk, cream, cream cheese and too many eggs, milk shake, ice cream, and ice-cream soda.

5. *Flesh Foods:* The meats to be particularly avoided are: All fried fish, fowl, and other meats; avoid all veal, pork, fat bacon, goose; all fat beef and mutton; especially avoid mackerel, eel, and salmon.

6. *Miscellaneous Foods:* Avoid also: Tea and coffee which contain sugar and cream, sweet lemonade, thickened soups, cream sauces, mayonnaise dressings, spices and condiments, chocolate, cocoa, peanuts, Brazil nuts, pine nuts, pecans, olive oil, sugar, syrups, malt, honey, rich desserts, candy, ice-cream sodas and

other sweetened soft drinks—not to mention wine, beer, ale, and all other alcoholic beverages.

This, then, is the story of those foods which allow you to eat and get thin; and the other class or “forbidden fruit” which will add to your troubles and delay your triumph over obesity. You are certain of success if you play the game intelligently—“according to the rules.”

For help in estimating the number of calories in an ordinary serving of those foods which are permitted—the reader is referred to the table at the end of Chapter IV.

See Fig. 5 for a special list of “The Ideal Reducing Foods.” These are the foods which will enable you to lose the greatest amount in the least time, while at the same time causing you the least inconvenience in the matter of unsatisfied hunger.

See Fig. 6 for the reason why so many of your favorite dishes have been placed on the “forbidden list”—there is a reason.

Saccharin is not to be recommended as a steady article of diet. It is probably harmless when used for a short time and in limited amount. It was formerly thought to be comparatively harmless; but recent investigators have come to regard it less favorably. When used moderately in the reducing menus, the authors have never observed any undesirable effects from the use of saccharin.

VEGETABLES

- Cabbage
- Spinach
- Sauerkraut
- String beans
- Brussels sprouts
- Asparagus

DESSERTS

- Apple
- Peach
- Orange
- Grapefruit
- Lemon
- Jello (plain)

**SALADS,
RELISHES, etc.**

- Radishes
- Onions
- Cress
- Tomatoes
- Lettuce
- Endive

BREADS

- Gluten
- Bran (plain)

LIQUIDS

- Buttermilk (fat free)
- Skimmed milk
- Unsweetened fruit-ades

ENTREES, etc.

- Whitefish
- Shad
- Oysters
- Boiled corned beef
- Lean beef
- Veal
- Mushrooms

**FIG 5.
SPECIAL
LIST
OF
IDEAL
REDUCING
FOODS**

Here is a list of foods which MUST NOT be eaten, and the reason why.

A slight study of the proportions of fat and carbohydrates they contain will make perfectly clear the reason why they are excluded from a diet which is meant to destroy fat. It will be seen that, in certain instances, fruits and nuts are as diligent fat producers as bacon and corn.

The figures given in the following list are quoted from Mr. C. F. Langworthy's valuable compilation:

<i>You Must Not Eat</i>	Because it contains percentage of		<i>You Must Not Eat</i>	Because it contains percentage of	
	Fats	Carbo- hydrates		Fats	Carbo- hydrates
Milk	4	4	Macaroni ..	1.5	15.8
Cream	18.5	4.5	Sugar		100
Cheese	18.5	2.4	Stick candy.		96
Pork	30		Potatoes ...	0.1	18.4
Ham	38.8		Green corn.	1.1	19.7
Olive oil ...	100		Figs		74
Bacon	67		Bananas ...		22
Lard	100		Grapes	1.6	19
Corn	4.3	73.4	Unfermented		
Wheat	2.2	73.7	grape juice		20.3
Buckwheat..	2.2	73	Chestnuts ..	7	74.2
Rice	2	77	Walnuts ...	63.4	16.1
Oats	3	69.2	Raisins	3.3	76.1
White bread.	1.3	53			

All these dangerous fat-making foods have been largely excluded from the menus; but there remain innumerable dishes at once satisfying and fascinating.

FIG. 6. FORBIDDEN FOODS: WHY

CHAPTER XI

REDUCING MENUS

THE capacity of a meal to satisfy depends not, or at least not primarily, upon its caloric value, but upon the weight and, especially upon the volume of its solid constituents. Liquids are not counted; they are removed from the stomach in a direct way. We cannot satisfy the appetite with water.

SATISFYING MEALS

Now since the satisfaction of the feeling of hunger cannot be altogether disregarded, the ideal reducing foods are those possessing a low caloric value, while at the same time affording considerable bulk for a given weight. For instance, one very small porter-house steak contains as much nutriment as a dozen raw oysters, and one large fig is as nourishing as five or six servings of lettuce; and so we see that in the selection of foods which will both satisfy and yet reduce, the utmost care must be exercised. The desire to fill the patient's stomach without supplying him with undue quantities of nutriment causes us to make abundant use of these "filling" foods, such as cucumbers, radishes, celery, lettuce, and varieties of green salad prepared with but little oils, fats, etc.

Fruits are a valuable aid in reducing, and among the most serviceable may be mentioned apples, berries, currants, and strawberries—but above all apples head the list, particularly the sour ones. Apples can be enjoyed almost the year around and are relished by an exceedingly large number of people. They contain but comparatively little nutritive value; their sugar content amounting to 7 per cent or less. Pears, plums, cherries, and oranges are also permitted in moderate amounts. Grapes contain, for the most part, as much as 15 per cent sugar. Hence, compared to apples, they must be eaten in smaller quantities. Many persons who, from fear of becoming fat, never put a lump of sugar in their coffee, day after day innocently eat large quantities of grapes, alleging that “grapes give no nourishment,” while, as a matter of fact, those half-dozen bunches of grapes have a sugar content amounting to five or six hundred calories; hence, equal to thirty lumps of sugar.

The menus which follow supply the exact foods required by the obese man or obese woman, not only for the reduction of flesh, but for the maintenance of healthy tissues.

They are arranged in accordance with the seasons of the year, with the respective necessity for both summer and winter demands for heat and energy.

About one thousand calories are allowed for each day's consumption; approximately three or four hun-

dred calories for lunch and about six hundred for dinner; the plan being to provide for two meals a day.

The majority of our patients prefer to omit breakfast and eat an early lunch. If breakfast is desired, a glass of skimmed milk, buttermilk, coffee, or substitute without cream or sugar, may be taken.

The following "reducing menus" provide for ten days' suggestive bills of fare for each of the four seasons of the year. These menus are typical of many others which can be varied to meet local conditions regarding food supplies, and to suit varying individual tastes.

Since the end-products of the digestion of meat, including fish and fowl, are so highly acid, we have used meat substitutes in one-half of these reducing menus.

Opposite each article, its caloric value is tabulated. Some of the early lunches will run under four hundred calories and some of the dinners will run a little over six hundred calories. The intention is to have the day's ration total about one thousand calories. Tea or coffee is not included in these menus, as the nourishment in a cup of tea or coffee is only that found in the cream and sugar used.

On retiring, a cup of "cooked" bran may be taken in hot water, which will aid in promoting peristalsis, and thus constipation may be avoided.

REDUCING MENUS FOR JUNE, JULY, AND
AUGUST

EARLY LUNCH

	Calories ¹
Radishes (5 good size)	25
Cold tongue (1 large serving).....	100
Bran bread—without butter (1 slice).....	100
Lemonade—sweetened with saccharin (1 glass).....	75
	<hr/>
	300

DINNER

	Calories
Baked fish (ordinary serving)	100
Small steak (broiled)	150
Spinach—lemon or vinegar (2 servings).....	100
Bran bread—no butter (1 slice).....	100
Sliced cucumbers—plain (3 servings).....	60
Cantaloupe (1 ordinary).....	200
	<hr/>
	710

EARLY LUNCH

	Calories
Cottage cheese (4 cubic inches)	100
Combination salad—plain (large serving).....	100
Raspberries—sweetened with saccharin (2 servings)....	200
	<hr/>
	400

DINNER

	Calories
Plain omelet (3 eggs).....	250
Baked onions (1 serving).....	50
Beet tops (1 large serving).....	50
Celery (6 large stalks).....	50
Blackberries—sweetened with saccharin (2 servings)...	200
	<hr/>
	600

¹ This estimation of calories is, of course, only approximate, but is sufficiently accurate to serve the practical purposes of the "Reducing Régime."

EARLY LUNCH

	Calories
Cheese sandwich (2 thin slices rye bread — no butter)	200
Tomato and lettuce salad — plain (large serving)	50
Fresh cherries (25)	100
	<hr/> 350

DINNER

	Calories
Fish (ordinary serving)	100
Small steak (broiled)	150
Graham bread (1 slice)	100
Radishes (5 large)	25
Baked onions — plain (2 servings)	100
Sliced tomatoes (1 extra large)	50
Rhubarb sauce — saccharin (2 servings)	50
	<hr/> 575

EARLY LUNCH

	Calories
Broiled mushrooms (6 large)	100
Dry toast (1 slice)	100
Sliced cucumbers — plain (2 servings)	50
Peaches (3 small)	100
	<hr/> 350

DINNER

	Calories
Cottage cheese (4 cubic inches)	100
Gluten bread (1 serving)	100
Tomato macaroni (2 servings)	200
Cauliflower — plain (2 servings)	50
Cucumber and tomato salad with cress (2 large servings)	50
Fruit ice — sweetened with saccharin (small serving)	100
	<hr/> 600

EARLY LUNCH

	Calories
Cold meat — with relish (large serving)	150
Cress — plain (large serving)	25
Lemonade — sweetened with saccharin (1 glass)	75
	<hr/> 250

DINNER

	Calories
Fish (ordinary serving)	100
Broiled chicken (one-half)	250
Graham roll (1)	100
Brussels sprouts—plain (2 servings).....	50
Endive—lemon or vinegar (large serving).....	50
Peaches (3 ordinary)	100
Buttermilk (1 glass)	75
	<hr/>
	725

EARLY LUNCH

	Calories
Vegetable combination salad (large serving).....	100
Rye bread (1 slice).....	100
Cheese (one and one-half inch cube).....	100
	<hr/>
	300

DINNER

	Calories
Broiled mushrooms (6 small).....	100
Plain omelet (3 eggs).....	250
Sliced tomatoes (2 large whole).....	65
Spinach—lemon or vinegar (2 large servings).....	100
Sliced pineapple—fresh, no sugar (4 thick slices).....	100
Limeade—sweetened with saccharin (1 glass).....	75
	<hr/>
	690

EARLY LUNCH

	Calories
Cold chicken (one-fourth).....	100
String beans—plain (2 servings).....	40
Sliced peaches—sweetened with saccharin (3).....	125
	<hr/>
	265

DINNER

	Calories
Fish (ordinary serving).....	100
Roast sirloin of beef (large serving).....	200
Asparagus—plain (1 large serving).....	50

	Calories
Sliced tomato (1 whole).....	35
Cress salad (2 large servings).....	40
Fruit water ice (large serving).....	200
	<hr/> 625

EARLY LUNCH

	Calories
Shelled walnuts (12 halves).....	100
Head lettuce — plain (2 large servings).....	50
Fresh pears (1 large).....	100
Skimmed milk (1 glass).....	75
	<hr/> 325

DINNER

	Calories
Cheese macaroni (large serving).....	200
One roll — without butter.....	100
Cauliflower — plain (2 servings).....	50
Egg and lettuce salad — plain (1 egg and ½ head lettuce)	125
Strawberries — sweetened with saccharin (2 large servings)	200
	<hr/> 675

EARLY LUNCH

	Calories
Vegetable combination salad — plain (large serving).....	100
Corned beef hash — with relish (small serving).....	100
Pears (1 large).....	100
Lemonade, sweetened with saccharin — or buttermilk....	75
	<hr/> 375

DINNER

	Calories
Meat loaf (large serving).....	150
Bran bread — without butter (1 slice).....	100
Steamed parsnips — plain (large serving).....	100
Cucumbers — plain (large serving).....	25
Green onions (5 to 12).....	35
Cantaloupe (1 whole).....	200
	<hr/> 610

EARLY LUNCH

	Calories
Filberts (10 whole).....	100
Blueberries — sweetened with saccharin (2 large servings)	100
Head lettuce — plain (1 whole).....	50
	<hr/> 250

DINNER

	Calories
Plain omelet (3 eggs).....	250
Dry toast (1 slice)	100
Cheese (one and one-half inch cube).....	100
Boiled beet tops — lemon or vinegar (2 large servings)..	100
Sliced tomatoes (2 large whole).....	75
Grapes (1 average bunch).....	100
	<hr/> 725

REDUCING MENUS FOR SEPTEMBER,
OCTOBER, AND NOVEMBER

EARLY LUNCH

	Calories
Hard-boiled egg with hot tomato sauce (1).....	125
Cantaloupe (one-half)	100
Bran bread — no butter (1 slice).....	100
	<hr/> 325

DINNER

	Calories
Fish (ordinary serving).....	100
Hashed turkey — with mushrooms (large serving).....	200
Chestnut, apple, and celery salad — plain.....	100
Spinach — lemon or vinegar (2 large servings).....	100
Grapes (2 average bunches).....	200
	<hr/> 700

EARLY LUNCH

	Calories
Cutlet of tenderloin (1 small).....	100
Apple and celery salad — plain.....	100

	Calories
Stewed oyster plant (2 servings).....	50
Graham bread (one-half slice).....	50
	<hr/>
	300

DINNER

	Calories
Savory nut loaf (large serving).....	200
Rye bread (1 slice).....	100
Cottage cheese (4 cubic inches).....	100
Combination salad—plain (large serving).....	100
Apples (2)	200
	<hr/>
	700

EARLY LUNCH

	Calories
Cold meat—relish (ordinary serving).....	100
Pineapple and lettuce salad—plain (1 slice pineapple, 1 head lettuce)	100
Apple or pear (1).....	100
Buttermilk (1 glass).....	75
	<hr/>
	375

DINNER

	Calories
Oysters—plain (6 large).....	50
Fish (ordinary serving).....	100
One roll—without butter.....	100
Roast chicken (one-fourth).....	125
String beans—plain (2 large servings).....	50
Sliced tomato (1 large).....	35
Watermelon (1 serving).....	100
	<hr/>
	560

EARLY LUNCH

	Calories
English walnuts (6 halves).....	50
Head lettuce—plain (1 whole).....	50
Watermelon (2 servings).....	200
	<hr/>
	300

DINNER

Calories

Savory lentil roast (large serving).....	200
Rye bread—without butter (1 slice).....	100
Spinach—lemon or vinegar (2 large servings).....	100
Sauerkraut (large serving).....	50
Fresh apples (2)	200

 650

EARLY LUNCH

Calories

Hamburger steak with onions (1 small serving).....	150
Cold slaw (large serving).....	50
Fruit salad—sweetened with saccharin (large serving)..	100

 300

DINNER

Calories

Raw oysters (6 large).....	50
Fish (ordinary serving)	100
Saddle of mutton—mint sauce (large serving).....	200
One roll—without butter.....	100
Mashed turnip (large serving).....	50
Eggplant—fried (1 large slice).....	50
Pears (2 large).....	200

 750

EARLY LUNCH

Calories

Broiled mushrooms (3 large, or 6 small).....	100
Cold game (ordinary serving).....	100
Cucumber salad—lemon or vinegar (large serving)....	50
Watermelon (1 serving).....	100

 350

DINNER

Calories

Fish (ordinary serving).....	100
Roast beef—avoid fat (ordinary serving).....	100

	Calories
Wilted lettuce—1 strip lean bacon (ordinary serving)...	150
String beans—plain (2 large servings).....	50
Peaches (3 small).....	100
	<hr/> 600

EARLY LUNCH

	Calories
Cottage cheese (4 cubic inches).....	100
Salad—grapefruit (one-half), celery (4 stalks), lettuce (half head)	150
Roll—without butter (1).....	100
	<hr/> 250

DINNER

	Calories
Toasted cheese (one and one-half inch cube).....	100
Cracker (1 large square).....	25
Savory dried pea puree with onions.....	150
Baked vegetable oyster (2 large servings).....	50
Cauliflower—plain (large serving).....	30
Graham roll—without butter (1).....	100
Fresh apples (2), or other fruit.....	200
	<hr/> 655

EARLY LUNCH

	Calories
Wilted lettuce with 1 strip lean bacon (small serving)...	150
Cottage cheese (4 cubic inches).....	100
Fresh pineapple—saccharin (3 thick slices).....	100
	<hr/> 350

DINNER

	Calories
Fish (ordinary serving).....	100
Roast turkey (large serving).....	150
Dressing (small serving).....	100
Cranberry sauce—saccharin (small serving).....	100
Baked onions (ordinary serving).....	50

Calories

Nut and apple salad (ordinary serving).....	100
Peaches (3 small).....	100

 700

EARLY LUNCH

Calories

Peanuts (13 double).....	100
Vegetable salad—plain (large serving).....	50
Pears (2 large).....	200

 350

DINNER

Calories

Mushroom omelet (3 eggs).....	300
Mashed turnips—plain (2 servings).....	75
Escalloped tomatoes (2 servings).....	100
Graham bread (1 slice).....	100
Apple sauce (ordinary serving).....	100

 675

EARLY LUNCH

Calories

Corned beef hash— with onions and tomato sauce (small serving)	150
Lettuce—plain (1 whole head).....	50
Casaba melon (one-eighth).....	100

 300

DINNER

Calories

Raw oysters (6 large).....	50
Wild rabbit or hare—stewed (large serving).....	150
One roll—without butter.....	100
Sliced Bermuda onion (large serving).....	25
Cabbage slaw (2 ordinary servings).....	75
Apples (2 large).....	200

 760

REDUCING MENUS FOR DECEMBER, JANUARY, AND FEBRUARY

EARLY LUNCH

	Calories
Ham — boiled (large serving).....	125
Baked squash (1 serving).....	50
Orange (1)	100
	275

DINNER

	Calories
Pan roast oysters — plain (6 large).....	50
Roast fowl (one-half).....	250
Brussels sprouts — plain (2 servings).....	50
Sliced tomatoes (2 whole).....	65
Fresh apples (2).....	200
	615

EARLY LUNCH

	Calories
Poached egg (1).....	75
Toast (1 slice).....	100
Celery (6 stalks).....	50
Orange (1)	100
	325

DINNER

	Calories
Toasted cheese (one and one-half inch cube).....	100
Baked beans (large serving).....	150
California artichokes — lemon (2).....	100
Rye bread — without butter (1 slice).....	100
Sliced tomatoes — plain (2 whole).....	65
Nectarines (2)	100
	615

EARLY LUNCH

	Calories
One poached egg on toast (1 slice).....	200
Apple and celery salad — plain (large serving).....	100
Lemonade — sweetened with saccharin (1 glass).....	75
	<hr/>
	375

DINNER

	Calories
Oysters — plain (6 large).....	50
Fish (ordinary serving).....	100
Hare with sauerkraut (2 large servings).....	150
Combination salad (large serving).....	100
Casaba melon (one-fourth).....	200
	<hr/>
	600

EARLY LUNCH

	Calories
Small steak — broiled	150
Stewed tomatoes — plain (2 large servings).....	50
Apple (1)	100
	<hr/>
	300

DINNER

	Calories
Oysters — with relish (6).....	50
Fillet of whitefish — no sauce (ordinary serving).....	100
Roast beef (ordinary serving).....	100
Cauliflower — plain (2 large servings).....	60
One roll — without butter.....	100
Sliced Hawaiian pineapple (4 small slices).....	300
	<hr/>
	710

EARLY LUNCH

	Calories
Hominy (large serving).....	100
Wilted lettuce — 1 lean strip bacon (1 serving).....	100
Prunes — sweetened with saccharin (6 large).....	100
	<hr/>
	300

DINNER

	Calories
Broiled mushrooms (3 large, or 6 small).....	100
Toasted wheat bread (1 slice).....	100
Nut roast (large serving).....	150
Tomato sauce (4 tablespoonfuls).....	100
Head lettuce—lemon or vinegar (1 whole).....	50
Canned pears (2 whole).....	200

 700

EARLY LUNCH

	Calories
Cold turkey (ordinary serving).....	100
Fruit salad—saccharin (large serving).....	100
Bran bread—without butter (1 slice).....	100

 300

DINNER

	Calories
Oysters (6)	50
Fish (ordinary serving).....	100
Fillet of beef—no gravy (large serving).....	150
One roll—without butter.....	100
Puree of celery root (large serving).....	75
String beans—canned, plain (2 large servings).....	75
Orange (1 large).....	100

 650

EARLY LUNCH

	Calories
Broiled mushrooms (6 small) with Spanish onion (one-half)	150
Head lettuce (1 whole).....	50
Nectarine (1)	50

 250

DINNER

	Calories
Cottage cheese (4 cubic inches).....	100
Whole wheat bread—without butter (1 slice).....	100

	Calories
Savory nut roast (large serving).....	150
Mashed turnips—plain (3 ordinary servings).....	100
Canned pineapple (3 large slices).....	300
	<hr/>
	750

EARLY LUNCH

	Calories
Cold fowl (ordinary serving).....	100
Celery and apple salad—lemon or vinegar (large serving)	100
Lemonade—saccharin (1 glass).....	75
	<hr/>
	275

DINNER

	Calories
Raw oysters (6).....	50
Fish (ordinary serving).....	100
Roast fowl with tomato jelly (one-fourth).....	150
Graham roll—without butter (1).....	100
Steamed parsnips—plain (two servings).....	100
Cold cabbage slaw (large serving).....	50
Canned blueberries (2 servings).....	200
	<hr/>
	650

EARLY LUNCH

	Calories
Toasted cheese (one and one-half inch cube).....	100
Crackers (2 large square).....	50
Buttermilk (1 glass).....	75
Oranges (2 small or 1 large).....	100
	<hr/>
	325

DINNER

	Calories
Fruit salad—plain (large serving).....	100
Nut loaf with tomato sauce (large serving).....	150
Sauerkraut (large serving).....	100
String beans—plain (3 servings).....	75

	Calories
One roll — without butter.....	100
Large apple (1).....	100
	<hr/> 625

EARLY LUNCH

	Calories
Celery (6 stalks), or radishes (12).....	50
Small steak	150
Bran bread — without butter (1 slice).....	100
	<hr/> 300

DINNER

	Calories
Raw oysters — with relish (6).....	50
Fish (ordinary serving).....	100
Roast turkey — with cranberry sauce (ordinary serving)..	150
Baked squash (1 large serving).....	75
Nut, celery, and apple salad — lemon or vinegar.....	100
Graham roll — without butter (1).....	100
Canned peaches (2 halves).....	100
	<hr/> 675

REDUCING MENUS FOR MARCH, APRIL,
AND MAY

EARLY LUNCH

	Calories
String beans — plain (2 servings).....	40
One roll — without butter.....	100
Head lettuce (1 whole).....	35
Oranges (2 small, or 1 extra large).....	150
	<hr/> 325

DINNER

	Calories
Fish — no sauces (small serving).....	50
Boiled beef (large serving).....	150

Calories

Boiled cabbage (2 servings).....	50
Baked onions — plain (2 servings).....	100
Nut and apple salad — plain (large serving).....	200
Buttermilk — or lemonade (saccharin).....	100

 650

EARLY LUNCH

Calories

Celery (6 stalks).....	50
Plain omelet (2 eggs).....	175
Canned pineapple (1 slice).....	100

 325

DINNER

Calories

Savory lentils baked with onions (large serving).....	200
Baked squash (1 small serving).....	50
Beet top greens (large serving).....	50
Radishes (5 large).....	25
Rye bread — without butter (1 slice).....	100
Cheese (one and one-half inch cube).....	100
Large apple	100

 625

EARLY LUNCH

Calories

Broiled mushrooms (3 large, or 6 small).....	100
Toasted bread (1 slice).....	100
Combination vegetable salad — plain (1 large bowl).....	60

 260

DINNER

Calories

Fruit salad — no dressing or sugar (1 large serving)....	100
Broiled spring chicken (one-half).....	250
Graham roll — without butter (1).....	100
Greens — lemon or vinegar (2 large servings).....	100
Fruit ice — sweetened with saccharin (small serving)....	100

 650

EARLY LUNCH

	Calories
Poached egg (1).....	100
Toasted bread—without butter (1 slice).....	100
Tomato and water-cress salad (3 large servings).....	75
Whole milk (1 glass).....	100
	<hr/>
	375

DINNER

	Calories
Split peas and onions (2 servings).....	200
Brussels sprouts—plain (2 servings).....	50
Stewed tomatoes (2 servings).....	50
One roll—without butter.....	100
Apples (2 large).....	200
	<hr/>
	600

EARLY LUNCH

	Calories
Cold roast beef—lean (1 serving).....	100
Celery (6 large stalks).....	50
Large apple or orange (1).....	100
	<hr/>
	250

DINNER

	Calories
Fish (1 serving).....	100
Celery (6 stalks).....	50
Roast beef—lean (2 servings).....	200
Greens—lemon or vinegar (2 large servings).....	100
Hominy—plain (small serving).....	100
Sliced tomatoes (1 whole, large).....	50
Apple or orange (1).....	100
	<hr/>
	700

EARLY LUNCH

	Calories
Roasted cheese (one and one-half inch cube).....	100
Crackers (4 large).....	100

	Calories
Head lettuce (1 whole) with lemon (one-half).....	75
Orange (1 large).....	100
	<hr/> 375

DINNER

	Calories
Fresh fruit salad—plain (large serving).....	100
Baked beans (2 servings).....	250
Mashed turnips—plain (3 servings).....	100
Hominy (large serving).....	100
Large apples or oranges (2).....	200
	<hr/> 750

EARLY LUNCH

	Calories
Herring (1 medium size).....	200
Rye bread—without butter (1 slice).....	100
Canned pineapple (1 slice).....	100
	<hr/> 400

DINNER

	Calories
Fish (ordinary serving).....	100
Broiled squab or pigeon (1).....	150
Spinach—lemon or vinegar (2 servings).....	100
Cold slaw—plain (2 servings).....	75
Orange (1 large).....	100
	<hr/> 525

EARLY LUNCH

	Calories
Cottage cheese (4 cubic inches).....	100
Combination salad—plain (small serving).....	75
Stewed pears—saccharin (2 halves).....	100
	<hr/> 275

DINNER

	Calories
Fresh fruit salad (ordinary serving).....	100
Fillet of whitefish (ordinary serving).....	100
Small steak—lean.....	150
Baked squash (2 servings).....	100

	Calories
Asparagus tips — plain (large serving).....	100
Sauerkraut (large serving).....	50
Apples (2 small).....	150
	<hr/> 750

EARLY LUNCH

	Calories
Cold chicken (one-fourth).....	100
Stewed turnips — plain (3 servings).....	100
Strawberries — sweetened with saccharin (1 serving)....	100
	<hr/> 300

DINNER

	Calories
Fish — without sauce (ordinary serving).....	100
Roast mutton — lean (1 large serving).....	200
Spinach — lemon or vinegar (2 large servings).....	100
One roll — without butter.....	100
String beans — plain (3 servings).....	60
California plums (3).....	100
	<hr/> 560

EARLY LUNCH

	Calories
Combination salad — plain (large serving).....	100
Toasted American cheese (one and one-half inch cube)...	100
California pears (2 large).....	200
	<hr/> 400

DINNER

	Calories
Roasted peanuts (13 double).....	100
Savory nut and lentil roast (1 large serving).....	200
Stewed tomatoes (2 servings).....	50
Cold slaw — plain (1 large serving).....	50
Fruit salad — sweetened with saccharin (2 large servings)	200
	<hr/> 600

REDUCING WHILE ON VACATION

Many have successfully reduced while on vacations and in such instances when time hangs heavily on the

hands and there is a constant desire to eat often, we offer a suggestive division of the day's allotment into six meals instead of two.

The following régime may be followed for six weeks with great satisfaction in weight reduction.

BREAKFASTS

- 7:00 A. M. One glass lemonade — without sugar
One and one-half ounces lean ham or bacon
One dry roll
- 10:00 A. M. Fresh fruit; one serving only of the following varieties: Apple, peach, orange, or half grapefruit
- 12:00 M. Fresh fruit only

DINNER

- 2:00 P. M. Clear soup or broth — four ounces (fat skimmed off)
Abundant green vegetables (no oil, butter, cream, or milk)
They may include spinach, string beans, lettuce, onions, celery, cress, cabbage, tomatoes, radishes, cauliflower
Salads are allowed with lemon or vinegar only
Two glasses of lemonade (without sugar) may be sipped after the dinner, or one glass of buttermilk

LUNCH

- 4:30 P. M. Cup of tea — without milk or sugar

SUPPER

- 7:30 P. M. Three ounces lean beef, mutton or lamb (occasionally boiled fish or chicken)
One slice bran bread, graham bread, dry toast, or stale bread
Radishes
Sour pickles

CHAPTER XII

EXERCISE IN RELATION TO REDUCING

EXERCISE in the open air and indoor gymnastics, together with the cold bath, tend to keep the body healthy and the mind in a happy mood—they also promote tissue-change. But their great significance largely lies in their general hygienic advantages, although they are of some value as reducing adjuncts.

THE MUSCLES AS REDUCERS

Muscles are not merely mechanical instruments of energy, they are also storehouses of power. A great deal of the heat by which the body is kept warm during cold weather originates in the muscles. This is the explanation of shivering and chattering of the teeth when one has been subjected to prolonged chilling. Muscular exercise increases bodily heat; therefore when the body is chilled to the point of danger and its owner does not know enough to engage in physical exercise for the production of heat, Nature produces involuntary exercise in the form of shivering—which phenomenon might be regarded as a sort of lazy man's forced exercise.

The muscles contain a substance which scientists have named oxidase. It is a digestive ferment which has power to oxidize; that is to burn up the sugar which Nature stores in the muscles for this purpose. During contraction muscle tissues are actually destroyed. A too rapid destruction of muscle permits the accumulation of various acids and other poisons resulting from tissue waste, and this explains why one experiences so much muscle soreness after prolonged or intense physical exercise when unaccustomed to it; and also as to the general sensation of fatigue, which is due to the circulation of these acid muscle poisons in the blood.

We have an ideal energy engine in the human body, embracing its bony skeleton, muscles, tendons, ligaments, etc. The combined strength of all the groups of muscles in the average body is equal to lifting about six thousand pounds. One-half of this strength is in the legs, one-quarter in the arms, and one-quarter in the trunk. The human body is a great system of complex mechanical leverage, and at any and every point of inspection exhibits abundant evidence that man was made to work.

REQUIRED DAILY EXERCISE

The amount of daily exercise required has been the subject of much discussion in scientific circles. It is impossible to offer definite rules. Everything depends

upon the individual, his strength, the condition of his muscles, etc. It is the author's opinion that for the average healthy man or woman, the daily amount of exercise which would keep the body strong and healthy is represented by a five- or six-mile walk in the open air—arms swinging, chest well expanded, abdominal muscles rotund, the spinal curve well maintained—in fact the whole body thoroughly energized. It must be remembered that this represents the sum total of exercise for one day. Now, if one does housework, walks to and from the office, climbs stairs, or engages in any other line of work calling into use various muscles of the body—this work must be subtracted from the proposed six-mile walk. This walk is suggested as representing an agreeable form in which daily physical exercise may be profitably taken by ordinary individuals in good health.

SYSTEMATIC AND SYMMETRIC EXERCISE

Physical exercise should be systematic and symmetric—not spasmodic and excessive. Man should cultivate his mental and moral faculties, as well as develop his physical powers. All his time and energy should not be spent in oiling the machine—exercising the physical body.

Regular, light, and, preferably, useful exercise is much superior to irregular and excessive athletics. No doubt much physical good has come from our mod-

ern school athletics, yet every physician is compelled to recognize many undesirable results from excessive exercise and overphysical training, chief of which is the so-called "athletic heart," which often appears several years after the discontinuance of extraordinary physical activity on the part of college athletes.

It is much better for the health to train and develop the heart and other muscles reasonably, than to overtrain these organs when young, and be compelled to discontinue these active exercises in middle life. There is great danger of fatty degeneration of the heart and other muscles. (See Fig. 4.)

EXERCISE AND THE HEART

Excessive, overviolent exercise may dilate the heart, and is always dangerous in weakened, aged, or obese individuals, or those with hard arteries and weak hearts. The time of special danger to the heart in the course of violent exercise is that point just before one gets what is commonly called his "second wind," a term signifying that the heart has become able to pump the blood through the lungs fast enough to accommodate the increased demands for oxygen on the part of the exercising muscles. As a rule, sudden sprinting is dangerous on the part of men and women who are above thirty-five years of age.

All forms of physical exercise which produce trunk bending, including walking, are invaluable in the pre-

vention and cure of constipation. These forms of exercise promote regular, normal movements of the intestinal tract. Constipation is becoming one of the curses of our present-day civilization, and it is due not only to superficial and wrong methods of breathing, resulting in abdominal congestion, with its consequent train of headache and depression, but also to increasing physical inactivity, which comes to us as a legacy of modern inventive ingenuity.

EXERCISE DANGERS

We have emphasized the harm of overdoing physical exercise, calling attention to the danger of subsequent fatty degeneration in heart and muscles. Dr. Winship was able to lift twenty-eight hundred pounds, but he died early in life.

The dangers from heat stroke must be borne in mind while exercising during the heated term. Heat stroke is most likely to occur under the following conditions:

1. Alcohol
2. Fatigue
3. Close rooms
4. Clouded sky
5. Tight clothing
6. Humid atmosphere
7. Excessive meat diet and overeating

PSYCHOLOGY OF EXERCISE

There is no doubt that physical exercise is more beneficial when it is pleasant and enjoyable. This is

true of all bodily exertion whether it be the play of the child or the work of the adult. The more one puts his mind into his physical exercise—the more he himself enters into his bodily activity—the greater the beneficial results to both mind and body, and the less the unpleasant consequences of fatigue, weariness, and depression. It would, therefore, appear that the ideal exercise from the standpoint of health and utility would be useful work which is at the same time pleasant and agreeable. It is, indeed, a blessed state for one to have reached the point where he or she can sincerely say, “I like my job.”

Systematic physical exercise aids in the destruction of many of the harmful poisons which are constantly developed within the body. In this way the mind is kept clearer and the soul happier—the mental and moral struggle of life is greatly lessened, for it is the accumulation or deficient destruction of many of these body-poisons which is responsible for so many of our morbid mental states, together with our unhappy and melancholic moods. Physical exercise, then, is an invaluable aid to the acquisition of a pleasant disposition and the full enjoyment of even one's religion.

CHAPTER XIII

INDOOR AND OUTDOOR EXERCISES

NEXT to the regulation of the diet the question of physical exercise comes to be the most important part of any efficient program for successfully reducing the weight. Physical exercise for the purpose of taking off flesh may be classified as, first, indoor exercise; and, second, outdoor exercise. In considering physical exercise, we will take up first those commonplace modes of bodily exertion which fall under the heading of "Indoor Exercise."

I. INDOOR EXERCISES

1. Housework. One of the most valuable forms of exercise for reducing the weight may be denominated "housework," with all of the various bending, turning, twisting, and stooping movements which the body must execute as one goes about the common duties that are a part of the daily routine of domestic life.

Sweeping, dusting, cooking, and even in the case of those who have servants, the active supervision of household work, with more or less participation in some of its activities, will be found to be of real value when it comes to reducing.

2. *The Washtub.* Too bad indeed that our customs and standards are such that women of means and culture cannot turn themselves loose early Monday morning on a washtub full of dirty clothes, for "washing" would prove to be a great reducer—especially of those unsightly accumulations of abdominal fat—which are the bane of so many obese women.

These same wealthy matrons will work like Trojans in a gymnasium, and put forth physical efforts in every way equal to those demanded by the washtub; but, of course, these bodily exertions are under the supervision of a physical director and are in accordance with a physician's orders; and that, of course, makes all the difference. Nevertheless, we have seen some mighty good work done by well-to-do patients, who cast aside all false dignity and went in for every form of work, not excepting their household duties.

3. *Stair Climbing.* Stair climbing is, excepting for the absence of the invigorating atmosphere, just as good a form of reducing exercise as mountain climbing. If the figure is kept erect, and the stairs are properly climbed, it represents an ideal form of indoor exercise, calculated greatly to aid in taking off flesh. Of course, it goes without saying that our reducing candidate has been subjected to the proper preliminary medical examination, and that there are no contraindications to this form of exercise.

In order to perform the exercise of lifting one hundred and fifty tons one foot high (the daily required exercise for the average healthy person—equivalent to walking six miles), it would be necessary to go up and down an ordinary flight of stairs one hundred and fifty times during the day.

4. *Dancing.* Dancing is a most excellent form of reducing exercise. For those who do not like dancing, or have scruples against it, there are other forms of exercise which are just as efficacious, or even more so, when taken under the direction of your physician or the gymnasium director.

Dancing of any kind is particularly helpful to those wishing to reduce. This is especially true of the nature dancing taught by Isadora Duncan, Maud Allan, Pavlowa, and others. Most of the modern dances greatly assist in reducing weight. One never sees a fat exhibition dancer; on the contrary, they are usually very thin. Nearly everyone likes to dance, so it is not difficult, as a rule, to get this part of the reducing régime carried out.

5. *Fencing.* Fencing is probably one of the very best forms of indoor exercise for reducing purposes. A few lessons will serve to teach you the movements, and you can practice these with the aid of an ordinary walking cane. The stretching, thrusting, and bending movements are all very serviceable for taking off flesh.

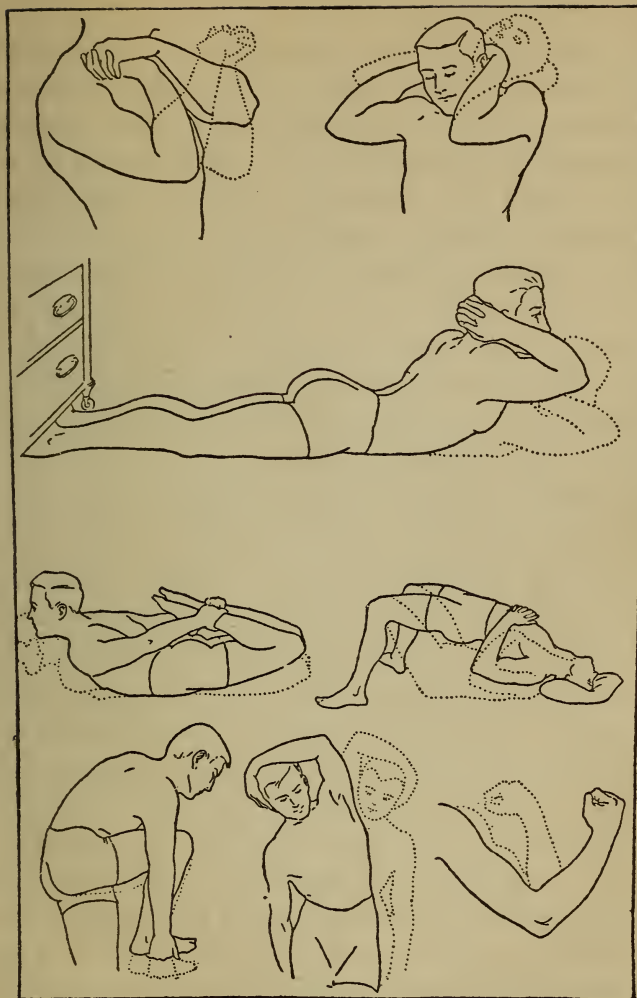
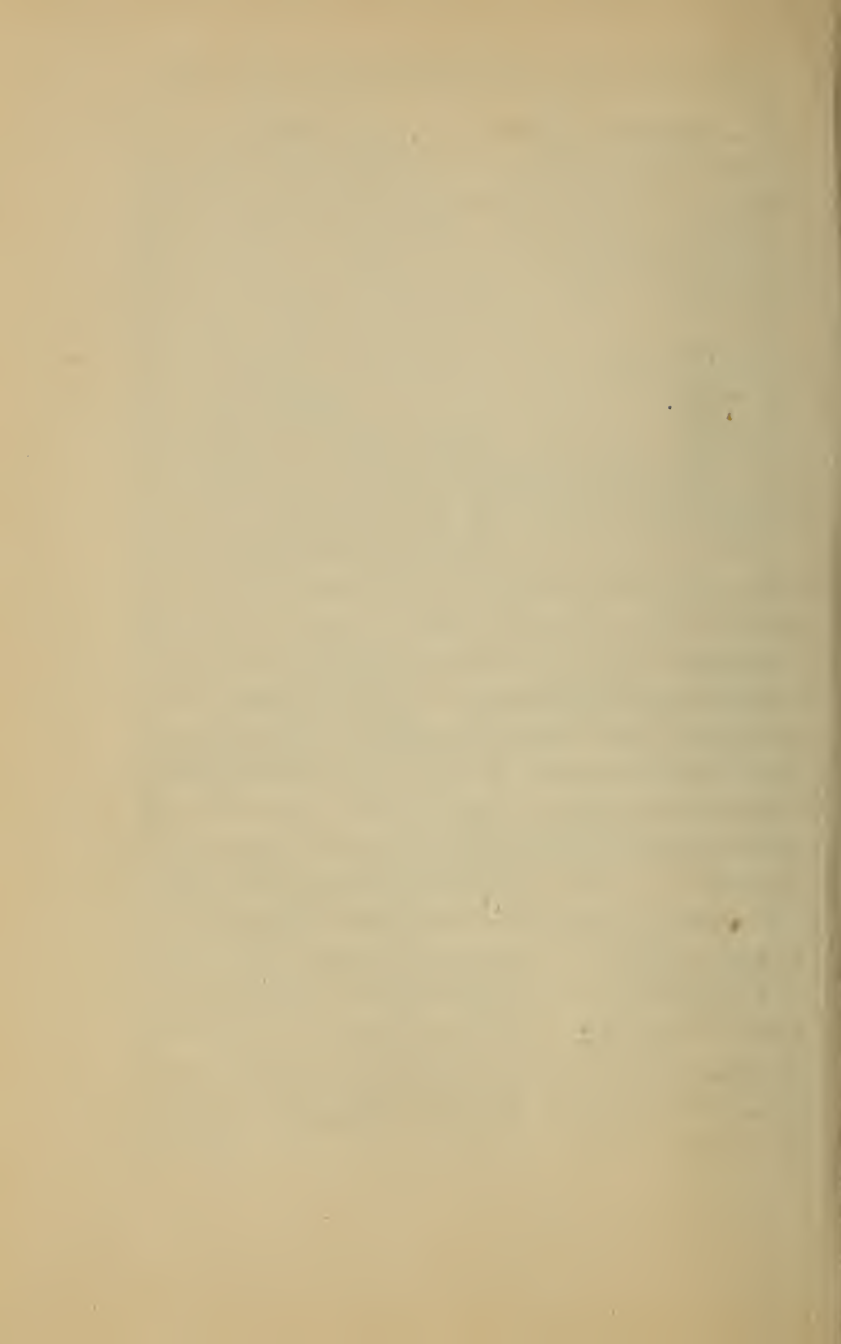


Fig. 7. Self-Resistive Exercises



6. *Self-Resistive Exercises.* In fat-reducing it is the heavy movements that count. Various forms of apparatus and other gymnastic work are good, but the average individual will not take time to patronize a gymnasium regularly. However, such persons can profitably engage in systematic exercise along the line of the various systems of so-called "self-resistive movements."

These systems of exercise are based upon the principle of exercising one group of muscles by means of resistance on the part of its opposing group; namely, to flex the arm slowly and energetically while at the same time causing the extensor group of muscles powerfully to resist the flexor group, and then to reverse the exercise—extend the arm while the flexors vigorously resist; all the while strongly imagining you are really lifting an enormous weight. (See Fig. 7.) This form of exercise is not only beneficial but economical, in that both groups of muscles are acting at the same time. The muscles are pulling against each other instead of pulling against dead weights.

Exercise, to accomplish its purpose, must be carried on each day to the point of perspiration.

The method for taking this exercise is fully illustrated in Fig. 7, showing how one group of muscles is made to work against its opponent group, so that a maximum of muscular exertions is part of every movement executed.

7. *Setting-up Exercises.* The conventional "setting-up" exercises, such as practiced in gymnasia and by the army, are valuable reducers. They are valuable to women, as well as men, and are too well understood to need detailed description. In large plants where hundreds of young women are employed this form of exercise has proven a great health promoter. The roof or the street makes a good open-air gymnasium.

8. *Running-in-Place.* A good form of indoor exercise is "running-in-place"—such as taught in gymnasiums. "Heel raising" is another good form of exercise. Rising on the toes (raising heel two inches each time) fifteen hundred times is equal to walking one mile, (or in case of a person weighing two hundred pounds) lifting twenty-five tons one foot high.

9. *Gymnastic Exercises.* While we recognize the value, from the standpoint of light physical culture, of Delsarte and calisthenics (embracing Indian clubs, dumb-bells, wands, etc.), at the same time we are compelled to classify such exercise as belonging to that class of movements calculated to develop grace, harmony, and coordination, rather than belonging to exercises suitable for reducing bodily weight. We would not be understood as in any way decrying these calisthenic exercises. They are all right in their place—certainly harmless at all times, and have some small exercise value; but they do not belong to the class of

real flesh reducing and health promoting activities such as walking, running, rowing, tennis, and the occupation exercise of housework. These calisthenics, however, are beautifully adapted to weak invalids and debilitated girls, and are useful as beginning exercises for a large number of people whose bodies are weak from disease or disuse.

10. *The Punching Bag.* This is a very interesting and useful form of exercise for reducing purposes, but is not so valuable as those which give more general bodily exertion—more bending of the trunk. The punching bag is fascinating and enjoyable and is helpful, though it may not be of the greatest value among the indoor exercises.

11. *Other Indoor Exercises.* The rowing machine and other special apparatus work will be treated in the next chapter on "Institutional Exercises." Wrestling and boxing are both serviceable in reducing; but are in general more adapted to men than women and are too well understood to require description here.

Rolling on the floor is a popular method of reducing and is useful if the patient has a good heart and if not carried to extremes.

II. OUTDOOR EXERCISES

Now we come to the description and discussion of the various outdoor exercises which are valued for reducing purposes, and it goes without saying that

these include all the well-known forms of athletic exercises and games which need not be mentioned individually, and all of which are of value in burning up superfluous flesh.

1. *Walking.* Walking is the best all-round exercise adapted to all persons which can be recommended for reducing purposes. If your physical examination was satisfactory, the doctor supervising your reducing régime will no doubt order more or less walking—even frequent long walks, hikes, etc. Of course long walks in the open air sharpen the appetite, and the reducers must keep sharp watch on themselves that they do not exceed their daily calorie allowance when it comes around to mealtime.

Walking on a level, at the rate of three miles an hour, represents an amount of physical work equal to lifting one-twentieth of the body weight through the distance walked; that is a man or woman weighing one hundred and fifty pounds, walking six miles, has done physical work equivalent to transporting seven and one-half pounds over the distance walked—six miles.

Walk as much as possible, and always walk briskly, but never overtire yourself. It is especially healthful to walk between breakfast and luncheon, swinging your arms in order to bring all the muscles into play. Then again take a good, brisk walk between luncheon and dinner.

2. *Tennis.* Tennis is a valuable form of outdoor exercise for those persons who are not very fat, and who are not over thirty-five or possibly forty years of age. Tennis is not to be recommended as a reducing exercise for those above this age. One of the great values to be attached to tennis is its social accompaniment, its utilization of the competitive game and spirit in addition to the rapid, strenuous, and continuous physical exertion.

3. *Golf.* Golf is really a combination of outdoor walking and the golf stroke; plus the incentive and interest of trying to make a good score and the pleasant associations with fellow-players. Golf is a form of exercise which is in every way safe for those who are forty years of age and above—beyond the tennis-playing age, and as an outdoor game or exercise cannot be too highly recommended for those who contemplate reducing; in fact, golf is a good way permanently to keep one's weight down.

4. *Horse-Back Riding.* From the standpoint of the fat folks, it is a great misfortune that the automobile has come to be the almost universal form of outdoor recreation and open-air enjoyment. The automobile is a fat promoter. Horse-back riding is a fat reducer of considerable value, and for those who have the leisure and can afford it, and have the taste for such forms of exercise, is of considerable value in the reducing régime.

5. *Cycling.* The bicycle was a very good form of reducing exercise and performed a valuable service in that direction in the by-gone years when it was in vogue. Now it has probably more or less permanently passed into disuse, and as far as reducing flesh is concerned is largely an event of the stationary bicycle of the gymnasium.

6. *Rowing.* Rowing is not only one of the pleasant and agreeable forms of outdoor diversion, but is a most valuable reducing exercise. There are few forms of outdoor exertion that can equal it, and probably none surpass it, as a quick reducer of flesh.

Of course, in the case of all these active, more violent forms of physical exertion, we take it for granted that the patient has been examined by a competent physician; and that these forms of exercise have been recommended as suitable and appropriate, in view of all this information concerning the patient's heart and general physical condition.

7. *Swimming.* For those who are physically fit and who enjoy aquatic sports, swimming may be regarded as representing the most valuable and efficient form of exercise for reducing flesh. Not only is the exercise ideal with its bringing into play every group of muscles in the body; but what is of equal importance is the fact that these most valuable physical exertions are being made in water that is nearly always from twenty to thirty degrees in temperature

below that of the body, and it is this cool water which calls for increased output of heat on the part of the body in an effort to maintain its uniform temperature and this increased heat loss means bodily fat burned up. It is this fact, in connection with the physical exercise, that constitutes swimming the procedure par excellence in getting rid of superfluous fat.

EXERCISE SUGGESTIONS

1. If you want to reduce rapidly, it is just as important to carry out your exercise régime as it is to follow your dietary.

2. If a movement is prescribed a certain number of times, do not increase the number because you think you are strong enough to stand more—follow the directions.

3. All exercises must be done with thought on the results to be obtained. Absent-minded exercise is not effective in the highest sense. Concentrate the mind on your therapeutic goal.

4. If you are a woman, never exercise in corsets, nor with any restricting bands or clothes that hamper. If you are a man, you should be careful that no belt hampers the freedom of the waist muscles.

5. Follow all cautions in regard to kind, amount, and manner of exercises, as carefully as possible. Remember there is such a thing as "muscular dosage."

6. The human body is a machine. In good health it runs without friction or disturbance of any sort. Most friction which the human machine suffers is due to bad carriage. Incorrect position in standing, sitting, and walking, causes pressure, displacements, and irritations untold.

7. When you are given instructions in standing, walking, sitting, climbing stairs, etc., these instructions must be followed until they become a habit.

8. Remember that the daily, faithful execution of your prescription for exercise is one of the agencies in reaching the goal of physical health and lessened weight. You have been given

exact, careful, and thorough directions. Carry out your prescription faithfully, just as you follow your diet directions.

9. In doing exercises at home, be careful to have plenty of fresh air and remember that correct breathing must accompany your physical work. Never hold the breath while exercising.

10. Concentration of mind, we repeat, is absolutely necessary for the best results. When you carry out your exercise prescription put every other thought out of your mind and perform the exercise with undivided attention and interest, focusing thought on the muscles or organs to be benefited and the results to be obtained.

CHAPTER XIV

INSTITUTIONAL EXERCISES

HAVING discussed indoor and outdoor exercises, there remain two other special forms of physical exertion to be considered; namely, those exercises especially adapted to the home, and those bodily activities which may be grouped under the heading of "Institutional Exercises"—such exercises as require gymnasium apparatus and other special mechanical contrivances. This chapter will be devoted to a brief description of the exercises and apparatus falling under this head, which our experience has demonstrated to be of more or less value in reducing fat folks.

I. MANUAL SWEDISH MOVEMENTS

Manual Swedish movements differ from massage in that the patient is required actively to participate in the different exercises and movements. In massage the patient is passive; but in those special exercises which we commonly group under the head of "Manual Swedish Movements" the patient is decidedly active—resisting the operator in that active manner which renders these exercises so much more valuable, as compared with ordinary massage, when it comes to the work of reducing flesh.

The illustrations found in Figs. 8A and 8B serve to show the method and manner of taking the manual Swedish movements. These exercises are given with the assistance of a trained nurse and in accordance with the physician's orders. They are of special value in reducing, with the exception of the one entitled "For a Weak Back"—which serves a valuable purpose in strengthening the muscles of the back, which are sometimes so weak and overworked from the task of long supporting a pendulous abdomen, that the obese sufferer complains almost constantly of back-ache, or so-called lumbago.

There is a group of special exercises on the order of manual Swedish movements that are carried out along the lines shown in Fig. 9, which are very valuable in the reducing régime, after the patient has reduced to that point where they can be taken with more or less comfort. One of the great advantages of this form of exercise as compared with the solitary physical exercises which one might take at home, is that the reducing patient has companionship—has encouragement and inspiration while going through the movements—not to mention the value of a trained nurse and a physical director in stimulating the weak will, when the patient is tempted by fatigue and weariness to give up the effort or to curtail the exercise. In some respects, this method of exercise is even superior to ordinary gymnasium work.



Fig. 8A. Manual Swedish Movements

1. For a "Weak Abdomen" 2. A "Muscle Developer"



Fig. 8B. Manual Swedish Movements

1. A "Constipation" Exercise
2. For a "Weak Back"

2. MASSAGE

While massage is not a direct aid in taking off flesh—while purely passive exercise of this sort is not much of a reducer—nevertheless, massage does play an important rôle in reducing fat folks—especially in reducing obese women. But we do not believe that massage is very effective as a direct reducing treatment.

Massage has an important psychological value as a part of the reducing régime. In the earlier stages, before the patients feel like engaging in the more active exercises, a massage now and then makes them feel like “something is being done for them,” and it cheers them on their way during the most difficult part of their reducing experience.

Massage is also of great value in those cases where there is an organic complication of some sort or other, and where the patient is not fit to begin active exercises at the start of their reducing course. Massage can begin the course and these passive movements can be followed up by more or less active manual Swedish movements and other exercises where the patient resists the operator.

Facial massage is also of value in preventing undue wrinkling of the face in those cases where a large amount of flesh is taken off in a comparatively short time. Daily, or tri-weekly massage during this period will be found of great value in maintaining a comely

appearance while at the same time the flesh is being rapidly taken off.

Fig. 10 will illustrate many forms of massage that are used in connection with the reducing régime.

3. GYMNASIUM EXERCISES

There is a large group of exercises which cannot be taken without the apparatus and other paraphernalia such as will be found only in a well-equipped gymnasium, though it is true, as will be shown in the next chapter, devoted to "Home Exercises," that it is possible to do practically everything, from the standpoint of flesh reduction, in one's home that can be done in the best-appointed gymnasium; though, of course, it requires more ingenuity, instruction, and persistency.

In Fig. 11 the reader will see the enthusiasm that can be generated while a small group of ladies are taking reducing exercises in a gymnasium. Certain bodily movements can be given in a small class, while the other work is individual and pertains to exercises with the "horse," parallel bars, stall bars, etc., not to mention the punching bag, medicine ball, rowing machine, mechanical horse, stationary bicycle, etc.

A gymnasium that is devoted to reducing treatments, or other special medical exercises is a great aid in reducing. Ordinary gymnasium exercises—marching exercises, dumb-bells, and wands—are not of any great value in the work of reducing flesh.

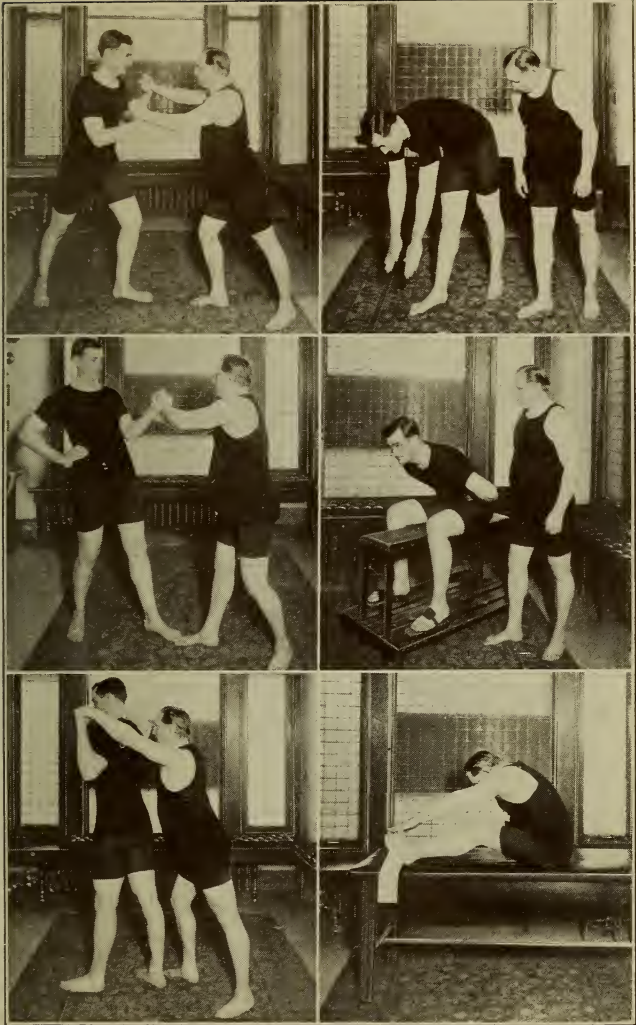


Fig. 9. A Group of Special Exercises



Fig. 10. Typical Scenes in Massage Treatment

1. Giving Swedish Massage
2. Deep Spinal Pressure
3. Abdominal Massage for Constipation
4. Special Facial Massage

4. THE MECHANICAL HORSE

The mechanical horse (see Fig. 11) is really an ingenious invention and one that has proved of great assistance in reducing fat people. Long before some "reducers" are disposed to engage in energetic exercises they are willing to mount the mechanical horse, and it is surprising to see how nearly this machine is able to imitate the jolting, jilting, and jarring movements of real horse-back riding.

Ingenious apparatus and gymnasium paraphernalia of this kind, with the encouragement of a physical director, and the association of fellow-reducers urge people to put forth that physical effort which they are loath to do at home, in the early part of their reducing régime, and then when they see that the combined efforts of diet and exercise is actually bringing about a loss of flesh, they are encouraged to that point and their wills are strengthened to that degree, where they enthusiastically take up their home exercises and other forms of outdoor physical activities.

5. THE STATIONARY BICYCLE AND ROWING MACHINE

The stationary bicycle (see Fig. 11) is a real help in the fight against flesh. The large dial in front beckons the patient on, showing them just how far they have gone, and they are able to follow out the prescribed course, that is to "ride off" the number of miles ordered; and, of course, they have someone

there to both encourage them and see to it that they do it. That is the main trouble with the fat folks as a class, they are disposed to slump, throw up the sponge, give up the fight before they have been in it long enough to secure those encouraging results which inspire them to go on.

The rowing machine (see Fig. 11) is an invaluable form of exercise, it is even superior to the stationary bicycle; in fact, I doubt if we have another such valuable piece of apparatus for indoor exercise when it comes right down to the actual results in taking off flesh. The value of the rowing machine is that it adds trunk movement to those of the arms and legs, and it is about the trunk that the average patient has most of his excess flesh deposited.

But it must not be understood that exercise is not of value when it is general, for as long as muscular movements require energy for their execution, this means burning up of foodstuffs in the system, and if at the same time the patient is undereating a trifle, additional fat—wherever it is deposited in the body—will be the first bodily constituent to be sacrificed to meet the increased demand for fuel which is made necessary by the increased muscular contractions.

6. THE TISSUE OSCILLATOR AND MECHANICAL KNEADER

The tissue oscillator (as shown in Fig. 12) is made in several different forms and is used in producing

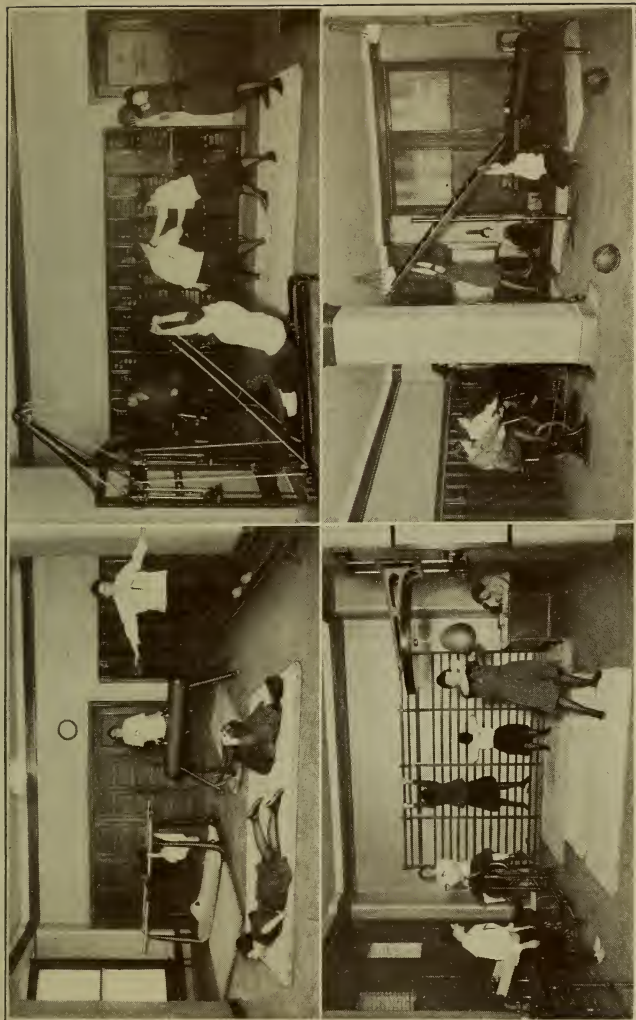


Fig. 11. Views in the Women's Gymnasium



Fig. 12. A Group of Popular Reducing Treatments

1. The Roller Reducer
2. The Mechanical Kneader
3. The Tissue Oscillator
4. The Bergonie Apparatus

mechanical vibration and massage effects about the hips and abdomen and undoubtedly is of some assistance in taking off flesh, because of its ability to increase local circulation — to heighten local metabolism, at least that is the belief of the authors as to the manner in which many of these mechanical exercises which are local in their application serve to take off flesh, for it is a fact that they actually do help in reducing.

The mechanical kneader (see Fig. 12) while not so efficient in attacking the fat deposit of the abdomen, as either the tissue oscillator or the roller reducer, is a very pleasant form of exercise, and has been, in our experience, used more as an aid to combat constipation than as a direct obesity treatment. But more about the management and treatment of constipation in a later chapter.

7. THE ROLLER REDUCER

The improved forms of apparatus on the order of roller reducing machines (see Fig. 12) has proved to be of real help in reducing flesh about the trunk, hips, etc. The earlier forms of apparatus which the authors tried, if used with sufficient force to be of any value, bruised the tissues and were in every way objectionable; but in the last few years these contrivances have been improved to that point where practically all of the objections to the old apparatus have been eliminated, and we are getting better results.

For many years we were slow to believe that apparatus of this kind was of any real value in reducing flesh, but a painstaking series of experiments made with recent apparatus has forced the recognition that it assists some in the local reduction of flesh, and our explanation of the physiology in these cases is just the same as has already been mentioned in reference to the tissue oscillator, only that these roller-reducing machines increase the local circulation and the metabolism of the local tissues to a much greater extent than any other form of apparatus or mechanical contrivance with which we have had any experience; and this is the only way we can account for their reducing effects.

And so the patient is not only encouraged by taking roller-reducing exercises, but they are in a very definite way really helping themselves in the battle to reduce.

8. THE BERGONIE CHAIR

The Bergonie chair (see Fig. 12) represents one of the most scientific forms of reducing flesh by mechanical exercise that ever has been devised. As will be seen, the chair as shown in the illustration—an electric-exercise apparatus—is so constructed that the patient lies down in a semi-reclining posture, with the knees slightly flexed, and in this position large sandbags of varying weight are placed over the body as

ordered, especially over the abdomen, or any other part of the body that we especially desire to reduce. This chair is in reality a series of insulated electrodes that are connected with an ingenious sinusoidal control apparatus, which is shown in the illustration on the table by the side of the Bergonie apparatus. Now, the reader should remember that it is possible to stand a very great deal of sinusoidal electricity with very little pain, it is almost a painless current, and so the muscles are caused mightily to contract under the stimulus of the electricity which is transmitted to the metallic Bergonie chair, and then with the aid of the sandbags which weigh down the body, muscular contraction and bodily movement is produced under the electric stimulus, while the patient—as far as his own will is concerned—is apparently trying quietly to rest in a relaxed position in the Bergonie chair.

These muscular contractions can be produced throughout the body, or any particular part of the body, as may be desired; as the chair is so wired that there is perfect control of all parts from the adjusting and regulating apparatus which feeds and controls the current to the exercise chair.

CHAPTER XV

HOME EXERCISES

WHEN it comes to the presentation of "Home Exercises" for reducing weight, we think the most help can be afforded the reader by presenting the actual case of a woman who recently was reduced under our supervision. This subject was allowed to use only such methods and exercises as can be employed by any woman in any home—plus riding on a stationary bicycle. She reduced thirty-six pounds in six weeks.

If you will follow this case through carefully, you will observe the practical outworking of diet combined with home exercises as employed for reducing weight. All of these exercises are accompanied by a description of just how they are taken.

THIRTY-SIX POUNDS REDUCTION IN SIX WEEKS

Mrs. — was 38 years of age, height 5 feet 3¼ inches, weight 204½ pounds. She came to us regularly each week-day morning at nine o'clock and remained until four in the afternoon, with an hour's rest at lunch time. Careful measurements taken before the treatment began were found to be as follows:

Neck measurement	16 inches
Bust measurement	43 "

Waist measurement	37 $\frac{1}{4}$ inches
Hip measurement	49 "
Thigh measurement	26 $\frac{1}{2}$ "
Calf of leg measurement.....	16 $\frac{1}{2}$ "
Ankle measurement	9 $\frac{1}{2}$ "
Upper arm measurement.....	14 "
Forearm measurement	11 "

A careful analysis of the urine was made, not only at the time of beginning treatment, but each week while under the treatment; accurate estimation being made of the acidity.

Each morning before coming to us she was allowed a breakfast of:

- One cup of coffee, without cream or sugar, or
- One glass of lemonade, sweetened with saccharin
- One and one-half ounces lean ham or bacon
- One dry roll
- One apple, peach, pear, or orange

Each day, exercises were taken in increasing severity, until noon, at which time she was allowed:

Fresh fruit — one of the following:

- Apple, peach, or orange
- Clear soup or broth, four ounces
- Abundant green vegetables, prepared without butter, oil, or milk. Those allowed her were spinach, onions, string beans, tomatoes, cauliflower, radishes
- Glass of buttermilk, or skimmed milk

In the afternoon she repeated the forenoon's work, leaving at four o'clock. She ate the following dinner at 7:30 P. M.

- Three ounces lean beef, mutton, or lamb
(Occasionally boiled fish or chicken)
- One slice of brown bread, graham bread, dry toast, or stale bread — with no butter

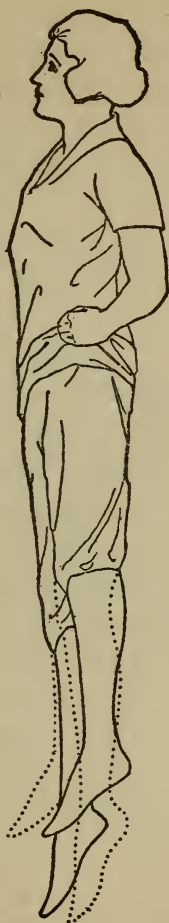
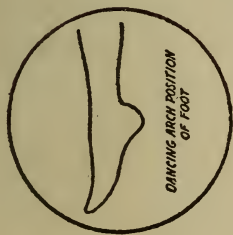
All the radishes she desired, and
All the sour pickles she wanted

These exercises and this diet were continued for six weeks with the following results: At the end of three weeks her weight had decreased to 185½ pounds. She had lost, as shown by measurements:

Around the neck.....	1¼ inches
“ “ bust	2½ “
“ “ upper arm	1¾ “
“ “ forearm	¾ “
“ “ waist	4 “
“ “ hips	4 “
“ “ thigh	2¾ “
“ “ calf of leg.....	1 “
“ “ ankle	½ “

At the end of six weeks, with no help except what exercises she could perform on the floor, without any apparatus whatsoever, with the exception of a stationary bicycle, which can be duplicated by an ordinary bicycle, she reached the following weight and measurements, here compared with her condition before taking the reduction work:

	Before	After
Weight	204½ pounds	168½ pounds
Neck	16 inches	13½ inches
Bust	43 “	38 “
Waist	37¼ “	30 “
Hips	49 “	41 “
Thigh	26½ “	22 “
Calf	16½ “	14½ “
Ankle	9½ “	8½ “
Upper arm	14 “	10½ “
Forearm	11 “	9½ “



EXERCISE NO.1

Fig. 13. The Alternating Leg-Stretching Movement



EXERCISE NO. 2

Fig. 14. The Bicycle Movement

Any woman can do what this plucky little woman did in six weeks, losing 36 pounds, if she can devote herself untiringly to the effort. Of course the same good results can be obtained over a longer period of time, without having to devote so much of one's time to exercise, by relying on the reducing diet to do the work.

And now follows a description of the exercises taken by this woman:

I. THE ALTERNATING, LEG-STRETCHING MOVEMENT

Lying down on her back, on a mattress on the floor, she went through a group of exercises particularly designed to reduce the abdomen, hips, and thighs, known as the alternating, leg-stretching movement, and which is taken as follows:

Assuming the dancing-arch position (foot fully extended and rotated outward with knee straight), now stretch the legs as far as possible, first one and then the other. One leg relaxes as the other is stretched, but the knee is not flexed at any time. Repeat this movement five to ten times, and gradually increase the number, day by day, until you do it two or three hundred times. (See Fig. 13.)

II. THE BICYCLE MOVEMENT

This exercise is known as the bicycle movement, and is particularly good for reducing the thighs. Lie

down on the back and grasp the flexed knees in the hands, the foot as well stretched as just described. Now extend the thigh, keeping the hand on the flexed knee, and alternating as was done in the exercise just described. Increase the number from two to three hundred times during the first two weeks. (See Fig. 14.)

III. THE LEG-THRUST EXERCISE

While on the back, the knee grasped as in the second exercise, the foot is thrust upward with strong extension of the knee and lower leg, reaching up as high as possible. The toe is extended and foot rotated outward, while up as high as possible. This exercise may be increased to two or three hundred times during the first week. At the end of the first week, these three exercises described consumed about forty-five minutes. Deep breathing exercises were taken after each fifteen minute's exercise. (See Fig. 15.)

IV. DEEP-BREATHING EXERCISE

Lying Position: Hands on hips, knees up, feet on the floor; take a deep inhalation through the nostrils pushing the abdomen outward, exhale through the mouth, and before breathing again lift the chest, pulling the abdominal muscles upward under the ribs. (See Fig. 16.)

After five to ten minutes rest these exercises were



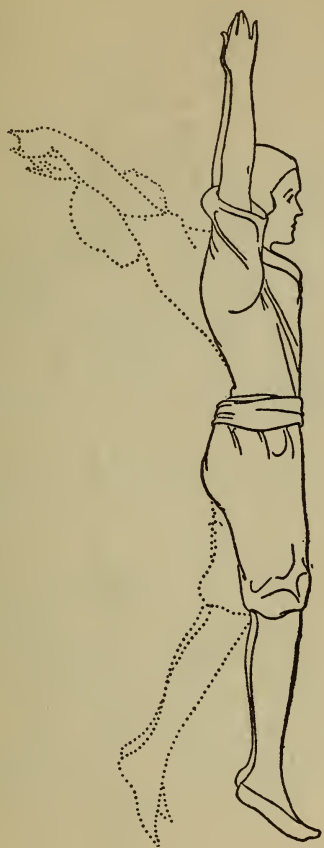
EXERCISE NO.3

Fig. 15. The Leg-Thrust Exercise



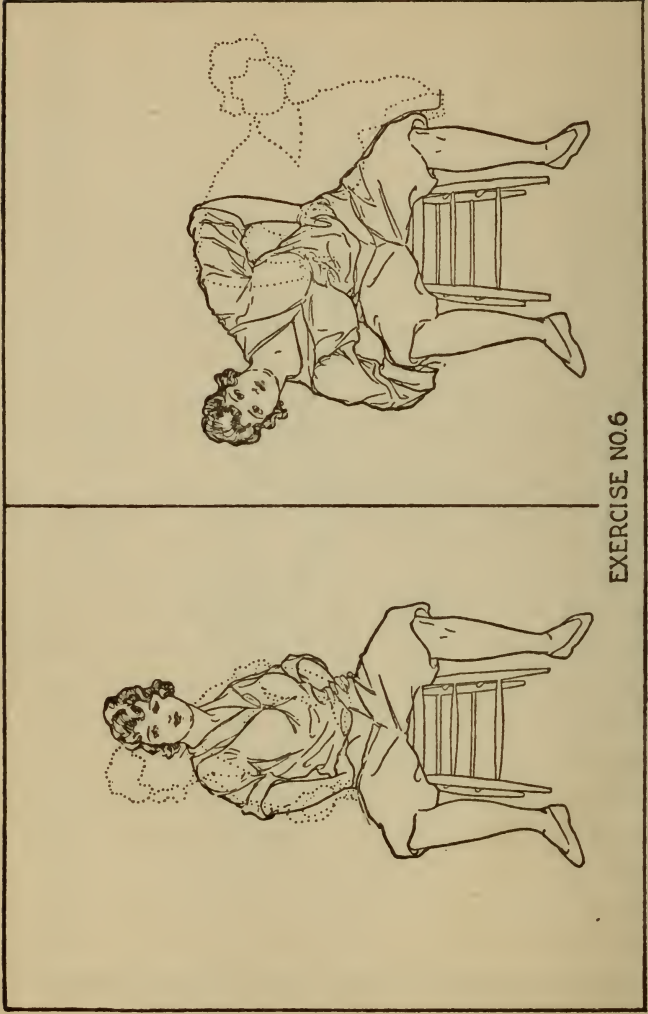
EXERCISE NO.4

Fig. 16. Deep Breathing Exercise



EXERCISE NO.5

Fig. 17. Body-Extension Exercise



EXERCISE NO.6

Fig. 18. The Liver Squeezer

repeated, followed by the breathing exercise. This was the program for the first week.

During the second week the first week's exercises were repeated, and the following three were added:

V. BODY-EXTENSION EXERCISE

Turning face downward on the floor, the arms stretched above the head, assume a quick bowing position, with the extended arms and legs briskly thrown up from the floor. The entire body remains for a few minutes in this tense bowing-extension position, then returns to rest position. (See Fig. 17.) This movement may be gradually increased up to three hundred times.

VI. THE LIVER SQUEEZER

This exercise is executed in the following manner: Sitting on a low stool, the position "hips firm" is taken; the feet should be eighteen inches apart. The trunk is strongly twisted to the right and back again to the front, repeating five times. Now twist again, and bend to the right five to fifty times, as you become accustomed to it. Then the trunk is twisted to the left, bending to the left as you did to the right. As you deeply bend, the elbow comes strongly to and beyond the knee. (See Fig. 18.)

Please note carefully that in all these exercises you should begin very slowly and gradually increase each day, thus avoiding weariness of muscle and unpleasant pain the following day. For instance, each movement

is done five times the first day, then seven, then fifteen, then thirty, then sixty, etc.

VII. ARM AND SHOULDER CIRCUMDUCTION

This exercise is taken as follows: Sitting position, place hands on shoulders, raise elbows forward, upward, backward, and outward, making a complete circle with the arms. Inhale with the forward movements and exhale with the backward. Much resistance should be made with this exercise. Within a few days this exercise may be taken from two to five minutes and is particularly designed to reduce the shoulders and upper back regions. (See Fig. 19.)

During the third week the following exercises may be added to those already described.

VIII. HIP SHAKING

This is an excellent abdominal reducer, and is taken in the standing position. Place hands on edge of bathtub or foot of low bed; now take two steps backward and stand astride. The heels should now rapidly rise and fall. This movement is good for hip reduction as well as for the abdomen, and may be continued from three to five minutes at a time. (See Fig. 20.)

IX. TRUNK CIRCUMDUCTION

This is a good exercise for reduction of adipose tissue about the waist, and is taken while sitting on a



EXERCISE NO.7

Fig. 19. Arm and Shoulder Circumduction



EXERCISE NO.8

Fig. 20. Hip Shaking



EXERCISE NO.9

Fig. 21. Trunk Circumduction

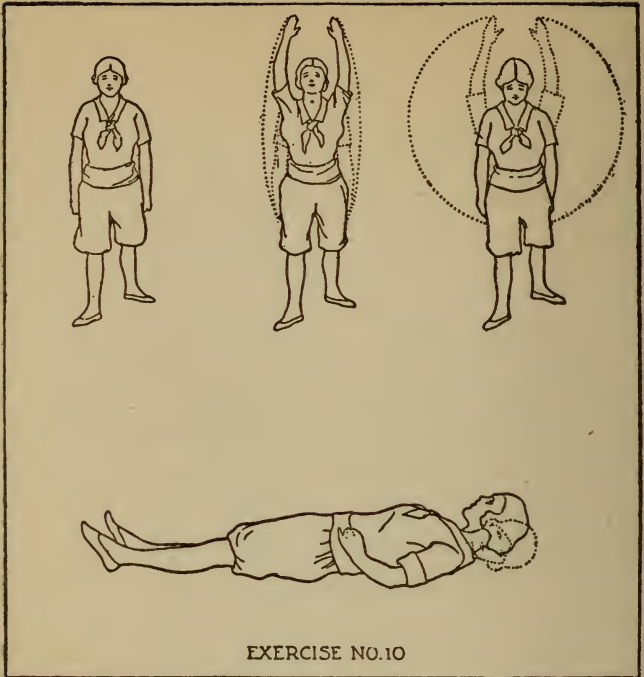


Fig. 22. Double Chin and Leg Exercises

low stool,¹ hands on hips, feet astride, the trunk is bent forward, the eyes are fixed on a point ahead of you. The upper body is now rotated, making a complete circle, swelling the chest outward as the body semi-reclines backward. This movement is taken from three to seven times. (See Fig. 21.)

X. DOUBLE-CHIN EXERCISE

The double chin should receive special attention as follows: Standing with feet astride, the right foot is forward placed. Now bend the body forward from the hips, the hands dropping at the sides. Breathe in and stretch arms over the head, and exhale. Bend the head backward. Stretch the arms to the side, and forcibly draw the chin in. Repeat this movement slowly from five to fifty times. (See Fig. 22.)

The neck muscles may also be reduced by assuming the lying posture, placing the hands on the hips, and lifting the head. Now allow the head to sink; turn the face to left and right alternately; raise, lower and repeat. (See Fig. 22.)

XI. LATERAL BENDING EXERCISE

Stand erect; arms stretched upward; feet astride. Bend over to right side, hands touching floor without bending the knees. Make a big sweep over to the left

¹ The stool for this exercise should not be higher than the distance from the knees to the feet.

side, hands touching floor. Repeat from ten to thirty times. (See Fig. 22.)

XII. LEG-SWINGING EXERCISE

The leg-swinging exercise is a good exercise for the development of the walking and running muscles. Stand on the edge of a stool, support the body by placing hand against the wall. The leg is now forcefully swung to and fro, as far as can be reached, both forward and backward. This exercise should be gradually increased from one minute to ten minutes at each session. (See Fig. 22.)

Daily bicycle riding if gradually increased will harden the thigh and back muscles. One mile the first day may be covered with ease. The distance is gradually increased to fifteen or twenty miles. The stationary bicycle of the gymnasium will be found very serviceable for this work.

CHAPTER XVI

BATHS AND BATHING

WHILE a regulated dietary and daily physical exercise constitute the backbone of the reducing régime, the value of a scientific course of baths as an aid to reducing should not entirely be overlooked. Bathing for reducing purposes becomes still more efficacious when it is intelligently combined with appropriate exercises. A scientific combination of hot and cold baths, combined with suitable exercises, tells the whole story of the reducing program, aside from the regulation of the diet.

The general principle of Reducing Baths is: Increase the consumption of carbon by prolonged cold baths and vigorous exercise while reducing the daily ration to the lowest point consistent with the maintenance of the patient's strength. The treatment must never be conducted in such a way as to diminish muscular or nervous energy. If there is complaint of feeling weak or debilitated, the vigor of the treatment must be diminished. There should be a steady gain in muscular strength accompanying the loss of flesh. The patient's strength may be determined from time to time by the dynamometer so that his condition may be known exactly.

HOT REDUCING BATHS

Sweating baths may be employed advantageously for the purpose of reducing the weight, or to remove serous deposits in the tissues, as in dropsy; and also as a hygienic or prophylactic measure for the purpose of atoning, to some degree, for the neglect of active muscular exercise. The hot bath, because of its alterative or spoliative effect, is most valuable as a means of treatment in obesity. It must be remembered, however, that the sweating produced by heat is by no means so effective in reducing flesh as that induced by exercise. It is by a combination of the two means that the most pronounced effects may be obtained.

In case of obesity there is more or less danger of overheating the blood because of the obstacle to ready heat elimination presented by the thick layer of non-conducting fat. Therefore, hot applications for the reduction of flesh should never be too greatly prolonged, and the bath should always be finished off by a vigorous cold application.

A short general cold bath of some sort, following an application of heat which has been given for the purpose of producing perspiration to reduce weight in obesity has the effect, in addition to the tonic effect upon the general nervous system, of increasing circulation and promoting metabolism, thus enabling the patient to add to the spoliative effect of the hot bath,

the still more positive effects similar to those of more or less prolonged muscular exercise.

THE HOT-BLANKET PACK

The hot-blanket pack consists in the envelopment of the body in a woolen blanket wrung out of water as hot as can be endured by the patient without pain or injury.

Requisites: A couch or bed with a good mattress, a small hair or cotton pillow, four or five woolen blankets, a rubber blanket, or mackintosh, and two or three bottles or rubber bags filled with hot water.

Method: The pillow is laid upon the couch, the rubber blanket is first spread out, the upper edge overlapping the pillow and all but one of the woolen blankets are spread out smoothly, one after the other, in such a manner as just to cover the pillow. Another blanket, having been placed in water at a temperature of about 160° , is then wrung out. The most convenient manner of wringing out blankets is shown in Fig. 25. The blanket should be rapidly wrung as dry as possible. After wringing, it is spread out upon the dry blanket as quickly as possible, and the patient, having been made ready previously, lies down at once in the center of the blanket and is quickly enveloped. Hot-water bottles or bags should be placed at the feet and sides for additional heat. The four or five dry blankets are snugly tucked around the patient.

This pack is largely used in the reducing régime — especially in connection with the Turkish and electric-light baths. After the patient has endured the sweating baths for a sufficient length of time, he is “packed” away in blankets for a further sweat. In this latter case, however, he is usually “packed” in dry blankets.

ALTERNATE REDUCING BATHS

In administering a sweating bath for the purpose of reducing flesh, it is an excellent plan to interrupt the hot application at intervals by a cold application — such as a cold shower bath, needle spray, a cold horizontal douche, or a cold pour — may be employed for this purpose. The temperature should be from 50° to 60° F., and the application continued not only long enough to remove from the skin the surplus heat which has been absorbed, but from five to twenty seconds longer, so as to produce a strong reaction. The atonic reaction of the hot bath, whereby heat production and tissue activity in general are reduced, will thus be antagonized; oxidation of fat will be greatly encouraged, and the tissue débris will be better prepared for the elimination which will be encouraged by the succeeding application of heat. By the adoption of this plan the hot bath may be prolonged to two or three times the period otherwise permissible and the patient will experience much less fatigue.

THE ELECTRIC-LIGHT BATH

The electric-light bath has proved, in the authors' hands, of far greater value in the treatment of obesity than any other means of applying heat; and it admits of much more general employment than the ordinary Turkish or Russian baths. One reason for this is the convenience and rapidity with which the degree of heat may be graduated by turning on or off one or more groups of lamps, the amount of heat being thus absolutely and instantly controllable, since the source of heat relied upon is the incandescent filaments of the lamps rather than a heated atmosphere. The instant the lamp is turned off, the heat which previously had been emitted is withdrawn from operation. If additional heat is required, the desired number of lamps may be turned on, and they instantly become operative.

Another reason for the more universal utility of the incandescent-light bath is the fact that when properly applied, its effects are highly tonic in character. A short application of the bath at full force for a time just sufficient to induce powerful stimulation of the skin without provoking perspiration is a most effective means of cutaneous stimulation. The tonic effects of such an application may still further be intensified by instantly following the bath with a cold spray or other cold application, thus producing a revulsive effect of the most agreeable and effective char-

acter. The excessive heating of the skin prepares the way for the cold application, without at the same time so overheating and relaxing the blood vessels as to render recovery of the tone of the cutaneous tissues so tardy as to involve the risk of exhausting the patient too greatly or exposing him to the liability of taking cold. The body temperature is also raised much more rapidly in the electric-light bath than in any other form of bath, because the rays of radiant energy pass through the skin and reach the interior of the body at once.

The electric-light bath (see Fig. 23) is a standard procedure in our reducing régime. As a preliminary heating procedure we utilize this bath more than all other forms of bathing combined.

It is the cold bath that reduces, and the best method of heating up preparatory for a cold oxidizing bath is by means of either physical exercise or the electric-light bath.

COLD OXIDATION BATHS

Strasser and others have shown that the application of the cold bath increases the absorption of oxygen and the elimination of CO_2 and it is evident that general oxidation is thereby greatly increased throughout the body. We are thus in possession of a scientific and harmless means by which the oxidation of carbon—in other words, the burning up of sugar or fat—may be influenced at will.

Cold applications for the purpose of increasing oxidation should be general in character, or at least should be sufficiently extensive to lower the body temperature a few tenths of a degree in order to develop the reaction necessary to increased heat production, and consequent increased consumption of the carbonaceous elements in the body tissues. More prolonged baths, such as the dripping sheet, rubbing shallow, cold immersion, plunge, and the cooling pack, are the measures most effective for stimulating oxidation of fat and carbohydrates.

The cold massage douche is one of the most powerful oxidation and alterative baths. It at the same time has the decided advantage of being much more easily tolerated than the ordinary cold douche. During the application, the vigorous kneading which accompanies the massage douche, does much to lessen the ordinary unpleasant impression produced by a stream of cold water striking the body. The cold massage douche may thus be employed with persons who are keenly susceptible to cold impressions, and also may be of service as a means of training them to the use of cold water in other ways.

THE COLD EXERCISE BATH

Probably one of the most valuable forms of reducing bath ever devised, and one which the authors have used very acceptably for more than a dozen years, is

what we have denominated "the cold exercise bath." This bath may be taken by those who have a good heart and good kidneys, and who are organically sound, except for their obese condition, and the bath is taken as follows:

1. The patient exercises, according to directions, very vigorously, using self-resistive exercises, or any other form of physical exertion that may be best suited to the individual case. This exercise is kept up until there is a profuse perspiration, the skin thoroughly reddened; in fact, up to a point where the feeling of cold water striking the skin would be welcome. As this point is being reached the spray, shower, and douche apparatus is made ready at a temperature of about 80° F.

2. Without a moment's delay, the patient, who is profusely sweating from his or her own exercise, is placed in the shower stall, and the water at 80° is turned on—the shower needle spray, with a percussion douche directed to the fat deposits about the hips and abdomen. The temperature is quickly lowered to 70°, or even 60°, the patients continuing this part of the treatment until they are thoroughly cooled, not chilled, but thoroughly cooled off. It will require on an average of about one minute to complete this cooling-off process, after which they are quickly and gently dried off.

The exercises just as already described are repeated,

and another cooling-off procedure with the shower bath and douche apparatus follows.

We have had patients leisurely keep up this program for hours at a time. It is not uncommon to make a half-dozen changes of this sort of exercise and cold-bath procedure during a single treatment.

This "cold exercise bath," the reader will see, presents all of the advantages to be had from the oxidation of fat through the influence of cold water, and it has the effect of lowering body temperature, which in turn gives rise to increased heat production, and therefore increased burning up of fat; while at the same time the patient prepares himself for this ordeal by means of his own physical exertion. This bath in the hands of the authors has proved to be the most valuable single form of bath procedure which can be used in bringing about a real reduction of weight. Of course, the sweating baths apparently do yield a greater reduction in weight; but it should be borne in mind that the weight lost is more apparent than real. The results of excessive sweating baths represent rather a loss of water instead of a loss of fat.

THE SINUSOIDAL EXERCISE BATH

This form of reducing bath is taken in an ordinary bathtub with which is connected a sinusoidal generating apparatus. The patient is immersed in the bath at the prescribed temperature, which may range any-

where from 90° down to 80° or 75°. Immediately the patient enters the bath the sinusoidal electric current is turned on, and the electrodes are so placed that the entire muscular system of the body is made to engage in fairly vigorous contractions, the rapidity of which can be regulated by the control mechanism of the generating apparatus.

In this way it will be seen that the patient has the benefit of the fat-oxidizing influence of the cooling bath connected with a form of muscular exercise, which, while it is entirely passive on the part of the patient, is nevertheless very effective as a reducing aid.

The sinusoidal exercise bath is peculiarly adapted to those patients who for any reason cannot engage in vigorous exercise, and also for those who are disinclined to take as much exercise as they should to bring about a speedy reduction in flesh. It is also of great value in the early days of treatment, before the patient has acquired that enthusiasm and devotion to the reducing régime which the subsequent discovery of loss in weight serves to stimulate.

EXERCISE IN CONNECTION WITH REDUCING BATHS

The importance of exercise in connection with reducing baths, especially the application of cold water, has been long recognized. Priessnitz kept his patients sawing and chopping wood a considerable part of the



Fig. 23. The Electric Light Bath

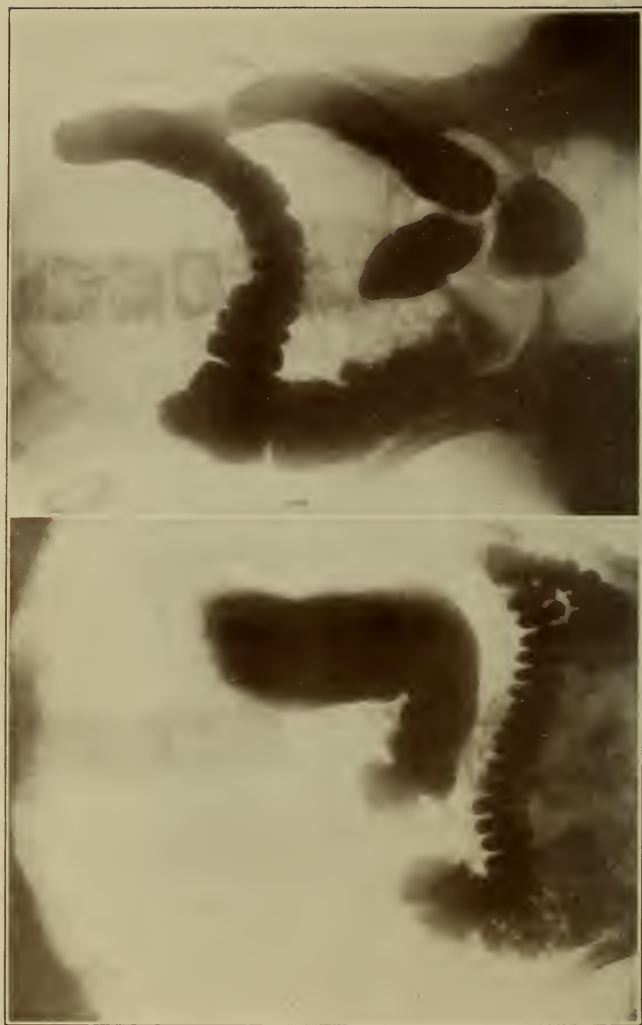


Fig. 24. The Bismuth Meal

time when they were not occupied with the multitudinous drinkings, packings, douching, cold plunges, etc.

Exercise not only encourages circulatory reaction, but especially encourages destruction of fat and increased heat elimination. It has been clearly demonstrated by experience that the temperature lowering which begins from five to ten minutes after a cold bath, is continued and greatly increased by exercise, so that the maximum diminution is fully one-half a degree greater with moderate exercise than without it.

EXERCISE BEFORE THE BATH

In persons able to take exercise, a sufficient amount of physical activity to produce free perspiration before a bath greatly favors the oxidizing effect of the application. Care should be taken, however, to avoid profuse perspiration in persons of feeble heart action, for the result would be so great an expenditure of energy that both circulatory and thermic reaction might fail; thus producing a secondary chill and most unfavorable effects. The cold bath should be taken immediately after the termination of the exercise, and before there has been opportunity for cooling of the skin by evaporation, which takes place with great rapidity when the skin is exposed to the air. If there must be even the slightest interval between the discontinuance of exercise and the administration of the

cold spray and douche, the body should be protected by wrapping in a blanket.

Exercise should not be sufficiently vigorous to induce excessive action of either the heart or the lungs, as a cold bath should never be administered when these organs are overexcited. The best forms of exercise are walking, Swedish gymnastics, stationary bicycle riding, dumb-bell exercise, club swinging, self-resistive exercises, the rowing machine, or some form of partial passive exercise, such as that of the roller reducer and massage for persons who are not vigorous.

A preparation by exercise, either active or passive, is to be preferred to a preparatory hot bath; but when necessary, the hot douche, hot immersion, vapor douche, Turkish bath, or best of all, the electric-light bath, may be employed. The electric-light bath is preferable to all other means of heating the skin, aside from exercise, for the reason that it quickly warms the skin and does not produce a depressing effect.

Too violent exercise should always be avoided for the reason that the skin and the body become thereby so strongly overheated that the absorption of the surplus heat requires so prolonged an application of the cold douche or other cold application that the nerve centers are apt to be quite exhausted by the too strong reflex activities set up, especially in feeble persons, resulting in incomplete reaction and subsequent depression.

EXERCISE AFTER THE BATH

Imperfect reaction after the cold bath is in the highest degree injurious, and the lack of knowledge as to how to avoid this exceedingly disagreeable and inconvenient accident is responsible for much of the prejudice existing against the employment of the cold bath as a reducing measure.

Incomplete reaction not only frequently results in a secondary chill, but in successive chills, or an almost continuous chill, not only for an hour or two, but often for several hours, after the bath. The hands and feet are cold, there is headache, not infrequently diarrhea, and other evidences of internal congestion, such as abdominal and ovarian pains, pains in the joints, neuralgic pains in various parts of the body, vertigo, lassitude, etc.

The proper combination of exercise and cold bathing has already been described under the head of "The Cold Exercise Bath."

PLUNGE BATHS AND SEA BATHING

In taking cold plunge baths, as in other forms of the cold immersion baths, the patient should leave the bath during the first reaction; that is, while the surface circulation is good and the sensation of warmth pervades the skin—before chilly sensations have begun to be experienced. If he remains until the secondary chill occurs and the skin begins to assume a

bluish appearance, thermic reaction is almost certain to be excessive, often resulting in fainting and subsequent headache, visceral pain, and possibly internal inflammation of some sort.

The effects of the plunge bath as a reducing agent are most excellent if good reaction is secured, but highly depressing when reaction does not occur. Headache, *malaise*, nervousness, and depression, are indications of defective reaction or an excessive application: that is, too long a time spent in the bath, or else the bath was too cold.

The sea bath (for those able to stand it) is a measure of great value, from both a hygienic and a reducing standpoint; as also are all baths associated with exercise and swimming, whether taken in lakes, rivers, or the sea.

The sea bath may be simple immersion, or a swimming bath in which the effects of the bath are combined with exercise. The length of the bath must depend upon the temperature of the water and upon the individual's susceptibility, or whether he has been accustomed to the baths. Ordinarily, the duration of the bath at first should not be more than three to five minutes. Later, it may be increased to twenty or thirty minutes, but seldom should be longer than this. The effects of the bath are essentially those of the full bath at a slightly higher temperature. The saline constituents of sea water encourage circulatory re-

action, while reduction in flesh is favored by the exercise which is commonly taken with the bath.

THE COLD EVAPORATING SHEET

A linen sheet should be wrung out of cold water and wrapped about the patient who is left otherwise uncovered. The skin is cooled by evaporation of water from the sheet, which may be encouraged by a vigorous fanning with an ordinary fan or by means of a current of air from an electric fan. By this means a degree of refrigeration or cooling as intense as the patient is able to endure may easily be produced. It is only necessary to keep the sheet moist to continue the effect as long as may be desired. The attendant should apply moderate friction by the hands on the outside of the sheet. When one has been properly trained in the taking of such baths as this, they may safely be taken at home.

HOME BATHING

It is not so easy to secure suitable reducing baths at home, as it is for one to engage in home exercises which are an aid in taking off flesh. Baths, in order to be the most efficacious, require such combinations as are difficult to secure in a home in which the usual bathtub represents the extent of the available bathing facilities.

The best form of reducing bath which can ordinarily

be taken at home is a hot bath, or hot shower, followed by a cold bath, or cold shower, and this in turn succeeded by vigorous friction and rubbing of the skin. The value of this bath, of course, is enhanced by repeating the alternate application of hot and cold a number of times, and then following the entire course of hot and cold showers or plunges by a vigorous rubbing of the skin. These hot and cold changes can be taken to advantage anywhere from half a dozen to a dozen times, depending on the ability of the patient favorably to react from these frequent changes in temperature. It is the cold bath that does the most good, because of its power to oxidize or burn up fatty tissue. The scientific value of the alternate applications of heat is to prevent undue chilling of the skin, and thus prepare the way for an acceptable reaction to the succeeding application of cold water.

Of course, ordinary sweating baths can be taken at home in the full tub. The packs can also be taken, and they are of some value, as already noted; but, as we have intimated, it is much more difficult for the patient to carry out an acceptable bathing régime at home than it is to engage in effective reducing exercises.

COMBINATIONS OF BATHS

It will thus be seen from a study of this chapter on baths and bathing that the best results are usually

secured by a scientific combination of hot and cold baths which are best adapted to the patient's individual condition. One can hardly advocate either hot baths, or cold baths as a scientific aid in reducing flesh. They work together as in the case of the "cold exercise bath," where the patient's exercise takes the place of the hot bath; or, as in the case of the electric-light bath, followed by the cold needle spray and douche.

The wet sheet pack also represents a combination in which circulatory reaction of the body may take the place of the hot bath in reacting to the influence of the cold and wet sheet when brought in contact with the skin.

So, in summing up the influences which are most potent for the reduction of flesh, and in the order of their importance, we would name them as follows:

- I. REGULATION OF DIET
- II. SYSTEMATIC EXERCISE
- III. SCIENTIFIC BATHING

CHAPTER XVII

AUTO-INTOXICATION IN RELATION TO OBESITY

THE majority of people among the obese class suffer more or less from chronic constipation and the resultant auto-intoxication; so that the treatment of this vexing ailment must be a part of the average reducing régime.

RETARDED ELIMINATION

The tardy movement of the food mass through the digestive system affords opportunity for undue fermentation and food decay, so that the results of this unwholesome microbic activity—these end-products of intestinal fermentation—are reabsorbed into the blood-stream and thus become potent for mischief throughout the body. The X-ray has shown that the bowels may move freely once or twice a day, and still there may exist intestinal stasis; for such people are like the proverbial southern passenger train—the bowels may move apparently on time, but be from one to two days behind time. (See Fig. 24.)

Intestinal toxemia is responsible for much of headache, lassitude, and general ill health, but not for all that is commonly ascribed to this cause. Much that is attributed to auto-intoxication is directly due to

“nerves” — to neurasthenia and hysteria — to uncontrolled and undisciplined nerves. Auto-intoxication as a cause of common disorders has been greatly overworked in recent years.

DIFFERENT SORTS OF CONSTIPATION

There are many different causes for constipation and its numerous unpleasant effects; and it may be of some assistance to the layman, in his or her efforts to combat this troublesome ailment, to understand something regarding the different causes which operate in bringing about sluggish bowel action.

I. SPASTIC CONSTIPATION. This form of intestinal stasis is found in patients who have an active and irritable nervous temperament, and in those who have a tendency toward colitis, or the so-called old-fashioned catarrh of the bowel. These cases are not only greatly benefited by the use of mineral oil and bland, unirritating foods, free from cellulose and high seasoning and spices, but are also greatly helped by hot applications over the abdomen and by the use of the oil enema in hemorrhagic mucous colitis. Water enemas should not be given these cases, unless the water is rendered markedly alkaline by the addition of soda. Colonic flushes are contraindicated, as is also heavy abdominal massage.

Sometimes this spasticity is limited to the sphincter muscle of the rectum; in other cases it is probably the

result of rectal fissure or ulcer or painful hemorrhoids, which must be overcome through proper treatment. Dilatation of the sphincter will sometimes without further treatment, practically bring about the cure of a case of spastic constipation. It is sometimes necessary to dilate two or three times.

It is probably needless to say that all cases of constipation and intestinal toxemia should have, as a part of their general treatment, thorough-going eliminative measures; such as the sweating procedures of the electric-light bath or some other equally efficient eliminative treatment.

You cannot depend upon laxatives and cathartics to cure constipation. If it is necessary, temporarily, to use a laxative, cascara will probably do the least harm. If you must use anything of this nature for any length of time, mineral or paraffin oil is the best. Mineral oil is not a laxative—it is simply a lubricant and agrees with nineteen persons out of twenty.

These paraffin substances, used either in liquid or solid form (and there's very little choice between any of these many preparations from the standpoint of efficiency), given before meals in doses anywhere from one to four tablespoonfuls, are invaluable aids in combating many forms of intestinal stasis.

2. **ATONIC STASIS.** This is the proverbial "sluggish bowel"—the chronic constipation of numerous sedentary folks who are so often found in states of

nervous exhaustion or neurasthenic collapse. We have come to regard "nervousness" as more frequently being the cause of constipation than as resulting from intestinal stasis. It is also found in many cases of enteroptosis where there is a general sag of the abdominal organs, and in some of those cases of chronic "biliousness," bad breath, coated tongue, etc. This is the group of cases shown up so well by X-ray studies and which are benefited by the increasing of roughage in the diet, as well as by the use of mineral oil. Many times marked improvement is obtained by alternating hot and cold applications to the abdomen, accompanied by vigorous massage, manual Swedish movements, or mechanical vibration.

The Moist Abdominal Bandage (Neptune's Girdle) may be used with great benefit. It consists of three layers—a linen layer, a mackintosh layer, and a flannel layer. The linen girdle is worn next to the skin and is wrung out of ice water and applied snugly about the abdomen, at bedtime. This moist girdle is covered with mackintosh or other impervious material; these two are then covered with two layers of flannel, which is snugly pinned on. The linen cloth which goes next to the skin must be thoroughly cleansed by boiling at least twice a week, or oftener, to avoid skin eruptions—the "humors" of the old-time, water-cure doctors. The girdle must be pinned on so tightly at bedtime that the cloth next to the skin will be moist

when it is removed in the morning. The mackintosh should entirely cover the linen and the flannel entirely cover the mackintosh.

Scientific massage and manual Swedish movements are invaluable in overcoming colonic stasis. The only form of electricity we have successfully employed in recent years is the sinusoidal current. Hydrotherapy is one of the most highly efficient measures which may be employed in combating auto-intoxication, both locally and constitutionally. The use of hydrotherapy must be adapted to the individual case, but it is almost the sheet anchor when it comes to getting those early results which are so essential to the patient's encouragement. Many cases are wonderfully helped by hot and cold (fomentations and ice) applied to the liver and to the lower spine—five or six changes—beginning with hot and ending with cold.

3. DIETETIC STASIS. Intestinal stasis as related to diet may be divided into two groups: First, those cases in which the chief fault is the taking of too small a quantity of liquids, in which event paraffin oil and agar are exceedingly beneficial. The employment of Japanese seaweed, which being indigestible, carries moisture throughout its long journey through the alimentary canal, is very helpful in cases of this class. Of course, such persons are encouraged to drink abundance of water, taking it in small quantities every half-hour or hour throughout the day.

The second group under the head of "Dietetic Constipation" is where the food contains too little bulk, where the diet is too concentrated. These are the cases which are peculiarly benefited by the addition of cellulose and other indigestible roughage to the diet of each meal. These are the folks who should eat bran bread, sauerkraut, spinach, turnips, etc., not to mention the more laxative sour fruits, such as apples, oranges, etc., and also (unless you are reducing) the highly laxative fruit-sugar eatables, such as figs and raisins.

Such cases of constipation and associated auto-intoxication can be cured easily by the regulation of the diet, but they represent only a minority group in the total number of sufferers from obesity and intestinal toxemia.

To summarize the dietetic management of constipation: Give abundance of liquids. One glass of cold water is taken immediately on rising each morning. At least eight glasses of liquids should be taken each day. Use bran systematically, together with the free employment of other forms of relatively indigestible cellulose, such as asparagus, cauliflower, spinach, Graham flour and whole-wheat preparations, bran bread, apples, blackberries, cherries, cranberries, melons, oranges, peaches, pineapples, plums, whortleberries, raw cabbage, celery, greens, lettuce, onions, parsnips, and turnips.

These coarse vegetable foods cannot be freely employed in these cases of stasis which are accompanied by alternating attacks of colitis. Such sufferers will benefit through the daily use of mineral oil. Meals should be taken regularly and water should be taken at regular intervals. Food and water are physiologic laxatives, and a stimulus to peristalsis. About the same amount of food should be taken at each meal in order to establish intestinal rhythm. Eat at the usual time, even if only fruit or bran is taken.

4. **MECHANICAL STASIS.** The cases of constipation falling under this head consist of intestinal adhesions, kinks, loops, etc., conditions which we hardly recognized until the recent years of X-ray investigation of the digestive tract. While these cases are helped by massage, hydrotherapy and suitable exercises, nevertheless, many of them are surgical, and a trip to the operating room is necessary to a cure. This is particularly so where there are post-operative or tubercular adhesions. In fact, we have come to recognize a veritable group of "surgical stasis," embracing gall-bladder diseases, chronic appendicitis, Jackson's Membrane, Lane's Kink—not to mention the more recently discovered condition of incompetent ileocecal valve. How often we have seen a case of chronic constipation entirely cured by an appendicitis operation.

Special exercises are of great value in all forms of

constipation, and are of special service in treating the sluggish bowel and in helping all cases where there is a prolapse of the abdominal organs.

Leg and trunk exercises strengthen the abdominal muscles, together with the proper amount of walking. These exercises should be a part of the regular routine management of chronic constipation. Both active and passive exercises may be employed—according to the patient's strength and the nature of the case. Horse-back riding and deep breathing exercises are of great value. The following procedures constitute the foundation of the daily régime, which must, of course, be properly adapted to each patient's individual condition and needs. Whatever the treatment of constipation, it must be *daily*; irregular and desultory methods will not produce results.

THE HOME TREATMENT FOR CONSTIPATION

1. *On going to bed*, the Moist Abdominal Binder is applied as before described. Great care is exercised in covering the wet linen completely with the mackintosh and also in pinning the flannel snugly about the trunk, fitting in at the waist, to prevent chilling through evaporation. A small cup of cooked bran, softened by boiling water, is taken just before applying the girdle.

2. *On rising in the morning*, a glass of cold water is taken. In a well-warmed bathroom, the girdle is

removed as follows: Have ready a bowl of very cold water; remove the girdle and quickly apply the cold water by brisk hand rubbing over the entire surface covered by the binder. Repeat the application three times and dry with a coarse Turkish towel. A plunge or cold spray may be taken if desired.

Clad in underwear and hose, the exercises are next taken as follows:

A. EXERCISES IN LYING POSITION

3. *Deep Breathing*: With hands on hips, forcibly extend the abdomen as you breathe in through the nostrils. Whistle the breath out through the mouth and before you breathe again lift the chest high.

4. *Auto-Massage*: With the extended fingers, press in the abdomen near the right hip bone. Now, with firm, hard resistance, force the hand out with the abdominal muscles. Press three times over each surface, and work by inches upward to the ribs, over to the left at the rib border, and down to left hip bone. Lift the hand over the pelvis to the right hip bone and proceed as before. This should continue for about ten minutes.

5. *Leg Raising*: Stretch legs to full extension and slowly raise and lower — take alternately and together. Continue for three minutes.

6. *Trunk Raising*: With hands on hips come up to sitting position and go back to lying; eyes straight

ahead. The toes may be supported at the beginning; later this exercise may be taken without support.

7. *Chest Raising*: Turn the body face downward and, with hands remaining on hips, forcibly bow the body, lifting the chest. Repeat ten to twenty times.

B. EXERCISES IN THE SITTING POSITION

8. *Trunk Circumduction*: Hands on hips, eyes straight ahead and feet separated—eighteen inches apart. Make a complete circle of the trunk from right to left six times and reverse.

9. Take position as above, with hands on chest instead of on hips. Twist body to left and bend to right. The right elbow should glide past the right knee. Reverse.

The above exercises should not consume over twenty minutes, after which an effort should be made at stool. If the result is unsatisfactory do not be discouraged, but return following breakfast, after the rectum has been lubricated with vaseline. For the first two mornings, in very bad cases of long standing, and where the bowels positively refuse to respond, the use of the glycerine suppository may be employed. It is rarely necessary to use them more than two or three mornings.

10. *Breakfast* may be your usual breakfast, but no matter what you may choose or have chosen for you, it *must include* bran—one or two cups.

11. A brisk walk of two to four miles is taken during the day.

12. A lunch of coarse, rough foods, or—better still—a lunch of just fruit (skins and all) is taken, and a dinner of coarse vegetables, as mentioned above, is eaten at the close of the day.

13. *Twenty minutes of exercises* are repeated at night, including the auto-massage, after which a bowel movement should again take place.

14. *The abdominal binder* (see page 167), is next applied, and this régime, if followed untiringly for two to four weeks, will usually overcome the most obstinate cases of constipation—providing the stasis is not due to mechanical obstruction.

Mechanical vibration must be managed by an expert to be of service in helping chronic constipation. The indiscriminating use of the vibrator, whether on the part of the physician or layman, has probably done more harm than good, and is regarded as the least valuable of the different methods suggested.

5. **HABIT STASIS.** The last group of intestinal stasis is due solely to habit. Neglect of the call of Nature is responsible for many cases of chronic constipation which come to the physician, seeking relief. Regular habits at stool, dilation of the rectum, a cellulose diet, and suitable exercises will afford early relief. In fact, many cases are cured by going to stool twice a day for a week or two, without any other treatment,

when they are not of too long standing. Train yourself to go at least twice a day to evacuate the bowels, with the feet elevated on a high footstool, so as to imitate the squatting position of former generations. We are about to come to the conclusion that anyone whose bowels do not move oftener than once a day is suffering from mild constipation. Eating starts up intestinal peristalsis, and so it is a good practice to go to stool immediately after each meal.

THE BUTTERMILK CURE

We have not found the buttermilk cure of great value, although we do regard it as a help, and never fail to make it a part of our régime. The Bulgarian culture is of value when taken by mouth or when used as a colon injection, but must not be regarded as a cure. Buttermilk should be employed as a food-remedy and not as a fad.

This chapter will not, of course, afford an opportunity to go into discussions regarding the intestinal flora (germs) which are responsible for the production of those toxins which are at the bottom of so-called auto-intoxication. We might add that we have found it very necessary to restrict the protein in the diet of these cases, particularly the animal protein, and that we have further found a fruit diet, in the vast majority of cases, to be highly beneficial both in overcoming intestinal stasis and in relieving the acidemia which

is such an ever-present feature in most cases of intestinal poisoning.

In recent years we have come to look upon the employment of an exclusive milk or milk and fruit diet (see Chapter xvii) as constituting the best possible means of bringing about a more or less permanent and favorable change in the intestinal flora.

CHAPTER XVIII

MAKING THE BEST OF IT

HAVING discussed the question of obesity from a scientific standpoint, and in all its phases; having presented the philosophy and technique of modern reducing methods, it is but fitting, in closing the discussion and before taking up the consideration of methods for gaining in weight, to take a parting glance at obesity from a standpoint of "making the best of it."

One of the most important things for those suffering from over-weight to remember, is that in order to be comfortable and happy of countenance, one's feet must be comfortable. Aching feet unfailingly produce bad spirits. So the very foundation of making the best of it is to secure a pair of comfortable shoes, made on a sensible last that will not cramp the feet, and it is entirely possible to procure such shoes, which will at the same time be, in every sense, well appearing.

Next, let the obese woman make a study of becoming hats. Get a hat which will be in good style and which will properly blend in with the neutral shades of a good-looking gown.

Large people, particularly large women, should not wear strikingly loud clothes, but should make a selection of their clothes from among the softer and more neutral tones. Seek to achieve that wonderful and harmonious blending of beautiful soft-tone colors, if you are over-weight and would appear at your best, and let the predominating color be that of shades bordering on the color of your eyes.

Of course, the obese woman must give attention to securing a reasonably hygienic, and at the same time properly fitting, corset. She should not be content with picking up a corset from the bargain counter, but should go to a good corsetier and select a garment of soft texture and supple boning. It is possible to find a corset in most every way compatible with health and which, at the same time will not only be comfortable but will greatly help in the general appearance. In fact, sometimes in cases of a prolapsus of the abdominal organs, a corset can even be made to be of real remedial value.

There is a style of dress which should be worn by the large woman, particularly the styles of 1919 (see Fig. 25) of the long waist-line effect—the coat dress—which is becoming and beautiful, and which gives her an appearance of being at least ten or twenty pounds under her actual weight. Avoid fitting, too snugly, the waist line, and no woman above one hundred and ninety pounds should ever be seen in a shirt



Stripes



Plaids

Fig. 25. Right and Wrong Dress

waist and skirt. It only accentuates the size and calls attention to her waist line.

The obese woman will be very wise if she observes certain rules and laws regarding lines. While many fluffy ruffles and beautiful plaid designs are artistically adapted to the tall and slender woman, stripes and figures which tend to produce a striped effect are particularly suited to the stout figure. I have in mind a number of my friends, each weighing nearly two hundred pounds, but whose designers are artistic enough to produce long-line effects, so that their friends are constantly congratulating them that they have reduced or that they are looking much more slender, when it is mere camouflaging by proper lines and the artistic design of the long-line effect.

If you do not possess that critical eye for harmonious effects, go to someone who does, and see that your hat, your coat, and your gown produce harmony. Let the hairdress be high. Avoid wrinkles in the face. Don't hesitate to spend some money on facial massage. Select a good cold cream and use lots of it, along with plenty of massage movements.

PART II
HOW TO GAIN

PART II

HOW TO GAIN

CHAPTER XIX

WHY FOLKS ARE THIN

IN ALMOST every case of emaciation, when it is carefully investigated, there are usually found one or more causes for the loss of flesh. These causes embrace a wide range, including hereditary and temperamental disturbances, functional and organic disorders. The recognition and proper adjustment of these influences which are directly or indirectly contributory to emaciation, lies at the very foundation of all intelligent and successful efforts to put on flesh—to fatten up these thin folks. So we will start out by considering these numerous causes for loss in weight.

I. FINICKY FOLKS

Some people retard their nutrition and keep themselves thin by their own incessant finickiness. They are so extraordinarily fastidious and so extremely fussy that the nervous system seems to be so affected as to interfere in some way with the proper digestion or assimilation of their food.

These little chronic nervous tendencies and whim-

sical ways, together with incessant anxiety and chronic worry, keep many people from putting on flesh up to the point of normal weight. The notion that everything must be done this way or that way, the constant anxiety to have everything just so-so, undoubtedly contributes to keeping many people reduced in flesh, even up to the point of danger — the point where they invite tuberculosis and other chronic disorders.

It is a generally recognized fact that worry will prevent the proper assimilation of food. Anxiety interferes with both the appetite and the digestion. Many persons who even sleep well, are under-weight, and their very personal appearance proves that while sleep is an antidote for work it is not for worry.

2. NERVOUSNESS

Emaciation runs in certain families, just as the tendency to obesity does in others. We have "thin" family trees and "fat" family trees. This obtains even in the lower animal world. Some animals are easy to fatten, others are like the famous razorback hog or the mustang pony — exceedingly hard to fatten up even to a moderate degree.

We think, however, that this hereditary tendency toward thinness is sometimes closely associated with the hereditary tendency toward nervousness. We think many people are thin because they are so nervous and they have unmistakably inherited this tendency

toward nervousness. Of course, in the case of hysteria, the patient's nutrition may be exceptionally good. In fact, many hysterical patients have a great tendency toward obesity.

The optimistic individual is more likely to have good digestion and good nutrition than the victims of pessimism. As a class, those who fret and fuss and fume are thin. Perpetual disturbance of the nervous system seems to interfere with nutrition all along down the line from the appetite itself to the final assimilation and storing up of the digested food-stuffs.

3. UNDEREATING

While we are of the opinion that a good majority of people habitually overeat, nevertheless there is a small minority of our people who habitually under-eat. The self-starved college girl who is possessed of the notion that a good-appearing young woman must not only be petite and winning in her ways, but must also possess that sylphlike physical form—such a girl, through pride and vanity, may not only bring herself to eschew the afternoon box of chocolates and bon bons but may actually enter upon a course of semi-fasting or partial starvation. Consultation with patients of this class leads us to believe that many young women are under-nourishing the body for these very reasons. We often find that they are only taking 50 to 75 per cent of the minimum amount of food

required to sustain a person of their weight in good health and strength.

Young women of this class have simply trained themselves to be satisfied with a bit of this and a pinch of that, and not engaging in any strenuous physical work, the appetite, under such circumstances, will be readily trainable to satisfaction with a very small amount of food.

Another group of thin girls, who should be considered in this connection, are the underfed, underclothed office and working girls; and for that matter the well-to-do young woman is also sometimes voluntarily underclothed—of course assuring her friends that she is very, very warm, in fact almost ready to smother, while she shivers with cold and her teeth chatter on some winter day, as she goes forth clad in her thin, georgette crepe waist and silk-clad ankles with low shoes, all the while her lips are blue and the circulation is retarded to the point of interfering with proper nutrition. Many times the same very lightweight underwear, consisting of a gauze vest and flimsy silk combination, of August days, is carelessly worn when the thermometer stands at 10° below zero.

The sweatshop type of girl is usually thin—and anemic as well. Her conventional lunch of tea and bread does not contain enough calories properly to nourish the body. Her blood becomes gradually more and more impoverished until she stands on the brink

of anemic collapse—chlorosis. This group of undernourished workers simply needs the opportunity to eat more of good food, but the small amount of money which they are able to use, or which they allow themselves to use for their lunches, is insufficient to purchase proper nourishment, or they have not been instructed how to invest their money in food to the best advantage. There is awaiting a great work to be done for the laboring classes in teaching them how most advantageously to invest their food allowance so as to secure the greatest amount of nourishing food compatible with tastefulness and other health considerations.

4. OVERWORK

It is obvious that some people are thin, not so much because they eat too little but rather because they work too much. Too much physical exercise will bring about emaciation just as certainly as will habitual undereating. Hard physical workers burn up their food much more rapidly than those of sedentary habits. Those who are seeking to increase their weight, will, of necessity, have intelligently to regulate their bodily work. The human body is an engine, and you cannot conserve its energy when the machine is burning up more than you are regularly putting into it.

Of course, it is more than likely true that, in most cases, where overwork is assigned as a cause for underweight, that it is chronic worry and anxiety that lies

at the bottom of the difficulty rather than physical exertion. At least we know this to be true in a great many of these cases.

5. INFECTIONS

It not infrequently happens that infectious diseases of childhood (scarlet fever, diphtheria, measles, etc.) lie at the bottom of the impaired nutrition of many children and youths. Typhoid fever has been known so seriously to cripple the assimilative powers of the digestive tract as to result in subsequent under-weight.

Local infections, such as so-called catarrh, colds in the head, running ears, chronic tonsilitis, sinusitis, chronic appendicitis, ulcers, gall-bladder infections, infected Fallopian tubes, etc., may work in such a way as to poison the body, interfere with the nutrition of the cells, and thus gradually bring about a loss of weight, with its resultant more or less serious emaciation.

In the case of young people, chronically diseased tonsils are very often responsible for disturbed nutrition and progressive loss of weight. The bad taste in the mouth results in loss of appetite, and this in itself interferes with the proper nourishment of the body.

Chronic appendicitis more often manifests itself as stomach trouble than in any other way. It gives its victims the impression that they are suffering from

some form of indigestion and so they curtail their eating and otherwise diet themselves, to such an extent that a considerable loss of weight results. It is remarkable to see how some people brighten up and put on weight after a bad appendix has been removed.

Ulcers of the stomach or duodenum of course result in a loss of weight in the majority of cases by actual interference with the taking of a proper amount of food.

Tuberculosis usually results in a loss of weight—not always however. When people lose in weight suddenly, under thirty-five, tuberculosis should always be suspected, just as cancer would be suspected by a sudden loss of weight after forty.

The different forms of anemia, or impoverished blood, always result in loss of flesh, whether it is chlorosis, the so-called “green sickness” of young women, the simple anemias, or the more grave blood disorders of adult life. These blood disorders require correction in order to enable their emaciated victims to put on flesh. These cases require iron injections, rest in bed, and other proper remedial measures, in addition to the mere effort to fatten the patient.

6. CHRONIC CONSTIPATION

Many people are thin as a result of chronic constipation—auto-intoxication. The whole process of digestion, assimilation, and elimination is upset and

interfered with. They live, day by day, in a state of chronic colon poisoning. The drafts in the furnace of the human engine are clogged, the ashes are not promptly and properly disposed of, and the fires of life burn dimly. There is a sort of smothering of the vital processes—a poisoning of every one of those millions upon millions of little cells which constitute the wonderful cooperative organization of the human body. The furnace of life is clogged with clinkers and stuffed up with cinders. Food is not properly burned up by the poisoned cells of the body, neither are its undigested remnants properly and promptly eliminated from the body.

When fermentation takes place in the intestinal tract many poisons—toxins—are absorbed into the bloodstream. They render the blood too highly acid, they irritate the nerves, they produce dark spots under the eyes (so-called liver spots), they may often produce a foul breath, interfere with the appetite, and gradually result in a loss of body weight until the patient becomes actually emaciated.

8. HYPERTHYROIDISM

The exophthalmic type of goiter (enlarged thyroid) always results in loss of bodily weight. The patient is nervous, apprehensive, the hands tremble, the heart is rapid and the eyeballs bulge forward. These patients are always thin. It is needless to add that these

sufferers will not put on flesh until the thyroid condition is cured or improved, either by rest and proper medical treatment, or by a surgical operation.

In some cases associated with these disorders, there are intestinal parasites which also tend to keep the body under-weight. It matters little whether it is tapeworm or hookworm, if the body is robbed of its nourishment, or the nourishment is sucked away by these parasites, loss of weight is bound to result.

9. HEREDITY

Last, but not least, a great many folks go through life thin and apparently little nourished just because they belong to so-called thin families. Heredity plays the chief rôle in many of these cases of life-long emaciation. In the discussion of obesity it was clearly pointed out that heredity is a very prominent factor in certain families who show a marked tendency to put on flesh to the point of over-weight, and the opposite of this holds true for other families. Generation after generation presents itself with lean, lank, almost cadaverous appearing individuals who, outside of this tendency to emaciation, enjoy good health and in every other way are happy and efficient.

It is perhaps in these instances of inherited thinness that we have the greatest difficulty in trying to fatten the patient, even by the most carefully planned dietary. Nevertheless, as a rule something can be done to help.

CHAPTER XX

THE FATTENING REGIME

IN ADDITION to the proper dietary, which will be considered presently, there are a number of things which are more or less important when it comes to carrying out successfully the fattening régime. The state of the mind, the patient's nervous behavior, one's habits of physical work, rest, etc., all have an important bearing on the success of one's efforts to put on flesh.

MENTAL AND NERVOUS STATE

A lot of people are thin, as already has been noted, because they indulge in so much worry and anxiety. A thorough-going effort must be made to stop the worrying habit—to calm down. The most scientific régime of feeding for the purpose of flesh gaining is likely to prove of no avail unless this tendency to fret and fuss and fume is overcome, at least partially if not wholly.

If you don't catch a street car, take it easy, you will get the next one. Plan your work so as to be a little ahead of time and not always on the ragged edge of being late for your appointments. Some suburbanites keep themselves thin and half sick over

trying to catch trains, or over the fear and worry that they will miss a train.

If you would gain in flesh, don't take yourself too seriously. In fact, adopt a motto something like this: "It is quite impossible to overestimate the unimportance of things." Take life as it comes to you, day by day and hour by hour. Do not react so violently to your environment. You may have to cultivate something of the "don't care" spirit and assume a "happy-go-lucky" attitude if you really want to put on flesh and put it on immediately. Those of us who take ourselves and everything else so seriously that we are thin and cadaverous, should wake up to the fact that other people do not take us so seriously. In fact your very predicament of malnutrition and ill health may be more or less of a joke to your friends. There are plenty of folks who are making themselves a joke to the world, all the while taking themselves with the utmost seriousness. Let each day take care of itself. In the words of Scripture, "Sufficient unto the day is the evil thereof."

Start the day relaxed and without anxiety. Don't make the mistake of the woman who did all her washing in the morning before she got out of bed. Go through the day, with its duties, in an even temper, and go to bed at night to sleep, not to worry. Don't even try to watch yourself go to sleep. Be utterly indifferent as to whether you go to sleep immediately or

not, because sleep is not gained by wooing it, but by relaxing the body and allowing the mind to be slowly overcome by the sleep tendency.

CARRYING TROUBLE HOME

Business men and women who are under-weight should learn to leave their troubles at the office—to lock them-up in their desks before they leave for home. The same should be true of the schoolteacher who is thin and would gain in weight. Leave your troubles at school and go home to relax and enjoy yourself. Many persons keep themselves thin carrying their burdens and troubles of the day home with them to exercise the mind and make the soul anxious.

Cultivate a cheerful atmosphere, for it must be remembered that, "A merry heart doeth good like a medicine." If you are under-weight, reader, cheer up, begin to laugh, read the funny page at dinner at night, cultivate the company of cheerful children, develop an optimistic outlook, and if you have no organic disease which is the cause of your emaciation, this state of mind in connection with proper diet will enable you to win the fight for more flesh. Seek the society of the young; try to take their point of view; get their mental attitude toward life, and *just don't grow old*. The face is an index to the mind; character, youth, and beauty are expressed according to one's thoughts.

PHYSICAL EXERCISES

We meet with cases now and then, who are helped in their efforts to gain in weight by judiciously taking a moderate amount of physical exercise. These thin folks should walk out in the open air, slowly, never to the point of exertion or fatigue, just a comfortable, leisurely sauntering along, as one would wander through the woods or up and down the banks of a shady stream. During this leisurely, out-of-door exercise, practice deep breathing to increase the oxygen intake, and afford Nature every facility possible for burning up the food, thus effectively to energize and warm up the body and thus encourage Nature to store away a little extra fuel in the form of fat.

Light and systematic exercise, in a cheerful frame of mind, is many times very helpful, especially if this work can be associated with cheerful companionship.

In case of a weak heart or other incapacity for exercise, the patients can, of course, be assisted by passive exercise such as massage and manual Swedish movements.

DEVELOP YOUR CHEST

Thin folks should practice deep breathing—should develop their chests. Flat chests don't go with gaining in weight; they go with emaciation, colds, etc.

Take deep breathing exercises each morning and evening. Go to the window on arising in the morning,

open it at the bottom, throw the shoulders well back and inhale through the nose, breathing deeply and expanding. Then exhale through the mouth. Do this with about ten breaths. These inhalations of air need not be confined to the morning; they may be practiced any time whenever there is pure, fresh air.

Try to walk always with the shoulders well thrown back, head well up, and the abdomen drawn in; this is the correct way to hold oneself to allow the air to reach the lungs.

Dancing and waving the arms about over the head and throwing them back, touching the hands together behind you, is a splendid exercise and, with the proper breathing, will develop and improve both the general health and the flat chest.

THE REST CURE

Those who suffer markedly from under-weight, especially when it is severe and of long standing, will usually find it necessary to start their gaining régime by a period of more or less complete rest in bed, in conjunction with a properly arranged dietary; and even the less severe cases will find it a good plan, at least in the early period of their efforts to gain, to cultivate the habit of taking a nap each afternoon, soon after the lunch hour. They should also make it a point to secure, if possible, ten hours of sleep, or at least rest in bed, each night.

If you are thin and want to gain, cultivate the play spirit. Go at your work with the mental attitude of a child. Try and make play out of your work. Light-heartedness is a great help in every effort to put on flesh.

It is perhaps needless to add that the outdoor life in seasonable weather is of great assistance in the treatment of anemia and emaciation. If one can take the afternoon nap out of doors, or even sleep out of doors at night during the summer, it will be found helpful.

A moderate amount of wisely chosen recreation will be of help, whether it be art, music, the drama, or light outdoor sports. In some cases the club, the church, and other more serious pursuits will be found equally beneficial.

If you would maintain good nutrition and put on flesh, you must be in love with your job. If it is impossible to love your present work, then you had better consider changing and getting a job that you will, or can, like. The man or woman who suffers from under-weight and who is constantly grumbling about his or her job is not likely to succeed in this program of fattening up. Even if they find themselves tired out at the end of the day, they can, while admitting the fact to themselves, associate it with helpful thoughts instead of depressing ones, as, for instance, you may say to yourself: "Yes, I am all tired out,

but I am happy. I like my job. I am glad I am in the world and have something to do." In this way much unnecessary nervous fatigue will be escaped and the body left in better position to store up energy and put on flesh.

THE CIRCULATION

Our "thin" friends, particularly, must see to it, especially during the winter season, that the hands and feet are not chilled—habitually cold. The blood carries the food to every part of the body and if it is not circulating freely and normally nutrition will be more or less interfered with; and while this is not such a serious matter with those of normal weight or over-weight, it becomes a question of exceeding importance to those who are under-weight and who are trying to put on flesh. This, then, entails the proper study of clothing and the proper heating and humidification of indoor temperatures during the cold season. Nothing is gained by overheating the living-rooms or workrooms. It is better to put on more clothing and keep the temperature during the cold weather at seventy degrees or a trifle below.

DIGESTION

It goes without saying that the digestive machinery should be in good working order, as well as to see that it is supplied with the proper quantity and quality

of food. So-called dyspepsia, whether it be functional — nervous indigestion, or organic — gall-bladder trouble or chronic appendicitis, is bound to interfere more or less with all efforts to put on flesh. Set these things in order and then, if you carry out the instructions which follow, under the head of "Fattening Foods," you are almost certainly going to start in slowly to gain in weight. The reader is referred back to Chapter III, Part I, for further suggestions along the line of "fattening foods."

A peaceful mind, pleasurable anticipation, freedom from care and anxiety, cheerful companionship, all form desirable table accessories which play the part of true psychical stimuli in accelerating the flow of the digestive juices and thus pave the way for more easy and thorough digestion. Further, it is easy to see how thorough mastication of food may prolong mechanical stimulation of the salivary glands and thus increase the salivary flow.

ELIMINATION

Last, but not least, the body must be kept free from its own poisons. Elimination must be good, but not overstimulated. Moderate sweats and, in some cases, very short electric-light baths just to the point of perspiration, followed by cold, wet hand rubs, wet towel rubs, or very brief cold showers, or a brief salt glow, will be found beneficial. Avoid severe sweating pro-

cedures, do not take long cold baths, or any other strenuous form of baths or treatment.

An effort should be made to encourage free bowel movement, at least twice in each twenty-four hours; and then with ordinary warm tub baths, say twice a week, the elimination should be properly attended to in the average case.

These mild forms of treatment serve to increase the appetite and thereby assist in putting on flesh. We refer to such treatments as the brief "Salt Glow," etc.

CHAPTER XXI

THE FATTENING DIETARY

WHEN we wish to put on flesh we begin at once to think of those foods which have been denied the folks who want to reduce. We think at once of increasing our carbohydrates (starches and sugars) and fats. We even know that drinking moderately at meals may assist us in putting on flesh because it will tend more fully to dissolve the food and thus assist in its digestion and subsequent assimilation. We further recognize the importance of having a good appetite, for appetite equals digestion and we cannot hope to assimilate and store food unless it is properly and quite completely digested. Of course, if the fluid taken at mealtime is milk or half milk and half cream, buttermilk, malted milk, etc., then this liquid intake serves a double purpose for it carries nutrition on its own account.

The essentials of a good appetite are normal living, proper exercise, bathing and elimination, good teeth, a clean mouth, and proper periods between the meals to permit of the development of normal hunger. Good cheer and contentment are also valuable aids to appetite and good digestion.

FATTENING FOODS

The following list and classification of ordinary foodstuffs represents those which contain most of the elements which will enable the thin person readily to put on flesh.

1. *Fruits*: Bananas, figs, dates, raisins, ripe olives, all of the sweet fresh fruits, such as sweet pears, persimmons, pawpaws, and sweetened stewed fruits.

2. *Vegetables*: Particularly all vegetables which are fried or served with cream sauce and salads with oil dressing; sweet potatoes, Irish potatoes, beets, green peas, green corn, green Lima beans, carrots, squash, and fried eggplant.

3. *Cereals*: All of the cereals are good fatteners, including all of the breakfast foods, macaroni, breads, crackers, biscuits, cakes, pies, pastries, puddings, as well as arrowroot, sago, cornstarch, and other farinaceous preparations.

4. *Nuts and Legumes*: All of the nuts, but particularly Brazil nuts, peanuts, pine nuts, and pecans, if properly masticated are highly nutritious, as are also the legumes—dried peas, beans, and lentils.

5. *Dairy Products*: Butter, butterine, rich milk, cream, cream cheese, milk shake, ice cream, ice-cream sodas, and eggs.

6. *Flesh Foods*: Particularly the meats containing fat and all fried meats, fried fish, and fowl, veal, pork, fat bacon, goose, mackerel, eel, and salmon.

7. *Miscellaneous Foods:* Other edibles which are more or less fattening are hot drinks which contain a great amount of sugar and cream, sweet lemonade, thickened soups, cream sauces, mayonnaise dressing, chocolate, cocoa, olive oil, sugar, syrups, malt, honey, candy, rich dressing, and all of the sweetened soft drinks.

This, then, is the story of those foods which are the more highly fattening portion of the human dietary, and while it is not suggested that the thin individual should undertake to subsist entirely upon this diet list, nevertheless, for a short period of time, it would be well to eat quite largely from this group.

FOODS WHICH THIN PEOPLE MAY TEMPORARILY AVOID
WHILE PRACTICING THE FATTENING RÉGIME

1. *Fruits:* Sour fruits and unsweetened stewed fruits, blackberries, blueberries, cherries, cranberries, currants, cantaloupes, gooseberries, grapefruit, sour grapes, lemons, nectarines, sour oranges, peaches, pineapples, plums, unsweetened prunes, and tomatoes.

2. *Vegetables:* The majority of the vegetables are low in nutritive value unless served with cream sauce or fried, or subjected to other treatment which adds to their nutritive value. Those of specially low nutrition are the artichoke, asparagus, string beans, cabbage, Brussels sprouts, sauerkraut, cauliflower, celery, cucumbers, greens, lettuce, mushrooms, onions, pars-

nips, pumpkin, rhubarb, radishes, spinach, turnips, and vegetable oysters. Though it must be remembered that while not possessing much value as fattening foods, these green vegetables and fresh fruits are very important as carriers of *vitamins* and should not be discarded in the dietary even of those who are seeking rapidly to put on flesh. Rich cream sauces and dressings may be added, which will increase the caloric value. Seasoning, in fact, can make any food more or less highly nutritious.

3. *Cereals*: As a class they are all good fattening foods, and none are to be avoided unless it be such foods as gluten breads and gluten mush. Hominy is difficult of digestion and is not, as a rule, as good as other corn products.

4. *Dairy Products*: Skimmed milk or skimmed-milk cheese are the only non-fattening foods in this group .

5. *Flesh Foods*: Boiled meats are less nutritious than the others and of course the lean meats are not as good flesh producers as those which contain some fat. Oysters are also very poor fatteners.

TYPICAL FATTENING MEALS

The following bills of fare are offered merely as a suggestion regarding the selection of those foods which are most highly fattening, and at the same time fairly easy of digestion :

SUGGESTIVE WINTER MENUS

BREAKFAST

	Calories
Oatmeal (1 large bowl).....	100
Cream (three-fourths of a glass).....	300
Sugar (2 teaspoons)	65
Bran bread— toasted (2 slices) should contain raisins and nuts	200
Butter (2 squares)	200
Marmalade (3 teaspoons)	100
Milk— whole (1 glass)	100
	<hr/>
	1065

LUNCH

	Calories
Fruit salad (1 serving)	100
Whipped-cream dressing (one-half cup).....	200
Figs (2 large)	200
Milk— one-half cream (1 glass).....	250
	<hr/>
	750

DINNER

	Calories.
Cream of corn soup (ordinary serving).....	100
Ripe olives (7 large)	100
Porterhouse steak (large serving)	200
Gravy (4 tablespoons)	100
Mashed potatoes (ordinary serving)	100
Creamed peas (ordinary serving)	100
Waldorf salad (ordinary serving)	100
Mayonnaise (3 tablespoons)	100
Custard pie (one-sixth pie)	300
Chocolate (1 cup) — whipped cream.....	150
	<hr/>
	1350

SUGGESTIVE SUMMER MENUS

BREAKFAST

	Calories
Strawberries (ordinary serving)	100
Sugar (3 teaspoons)	100
Cream (one-half glass)	200
Toasted flakes (large serving)	100
Cream (one-half glass)	200
Sugar (1 teaspoon)	35
Nut bread (1 slice)	125
Butter (1 square)	100
Poached eggs on toast (2)	275
Butter (1 square)	100
	<hr/>
	1335

LUNCH

	Calories
Orange juice (1 glass)	100
Sugar (2 teaspoons)	65
Ice cream (large serving)	250
	<hr/>
	415

DINNER

	Calories
Cantaloupe (whole)	200
Olives (7), celery and radishes	125
Jelly omelet (3 eggs)	225
3 tablespoons jelly	100
1 square butter	100
New potatoes (3 small)	100
Thick cream sauce (4 tablespoons).....	150
Fried eggplant (1 slice)	100
Malaga grape and Brazil nut salad.....	200
Whipped cream (one-half cup)	200
Ice cream (large serving)	250
	<hr/>
	1750

Cream is added to the meals to the extent of about a pint a day, milk one quart, eggs two to four, ripe olives one dozen to eighteen. Ice cream may be taken in abundance. The food should be chewed well, and the liquids taken at the meal should be sipped along with the meal. Nothing should be taken between meals.

Where two heavy meals are taken, such as the above menus suggest, it is wise to eat lightly of liquid or semi-liquid foods for the midday meal.

CHAPTER XXII

THE SPECIAL FATTENING DIET

YOUNG women, middle-aged women, and older women as well as men of all classes have found the fattening régime to be most gratifying in its results, and they have added from twelve to forty pounds to their weight in two to four months.

The average person taking up this régime may continue about his daily tasks. Teachers, business men and women, and office girls have continued at their work and have successfully added pound after pound in weight.

Only those who need a rest in bed, or who are suffering from ptosis (prolapse) of the stomach and bowel need be put to bed. In the latter case the foot of the bed should be raised nine to twelve inches; thus encouraging gravity to replace the organs and then by remaining in this posture and with addition of cushions of fat which will accumulate in the abdomen—the stomach is more or less permanently held in normal poise.

In either case, whether the thin subject remains up and about, at work, or whether he goes to bed the program is the same.

1. *First Day:* For the first day take only orange juice at hourly intervals (two dozen). Hot water is also taken in abundance.

2. *Second and Third Day:* On the second and third days take whole milk and fruit juice as follows: One glass of whole milk is sipped through a straw every hour. With each glass of milk the juice of one-half lemon and one whole orange (without sugar) should also be sipped through a straw — taking three sips of milk, one sip of fruit juice, etc.

3. *Fourth Day and After:* On the fourth day carry out the same program, only making the interval forty-five minutes instead of one hour. To the four or five quarts of whole milk to be taken each day, add cream gradually and in increasing quantities until the food mixture contains from one-fourth to one-third cream. In addition to this milk-and-cream mixture the lemon and orange juice is continued just as directed for the first three days' feeding. *If the bowels are too loose decrease the amount of lemon juice, and increase the orange juice.*

4. *Feeding Intervals:* As a rule it is best to start the "feedings" at 7:30 A.M. and feed every forty-five minutes to one hour until 7:30 P.M.

5. *Quantity of Milk:* A small amount of milk is constipating, but a large amount is laxative. In this régime it is necessary to take four or five quarts every twenty-four hours and fruit juices as prescribed.

6. *Lemon Juice*: This is well tolerated with the milk régime, and many persons who always have believed that they could not take milk at all have found it very acceptable combined with the lemon juice. Most patients take about six lemons but in a few instances as many as ten have been taken to produce a soft bowel movement twice a day.

7. *In Case of Trouble*: If the schedule in any way disagrees with you, it is more than likely that you are falling down in carrying out the instructions. Read them over again. If there is serious trouble of any kind, consult your doctor. Nausea is often overcome in the early days by increasing the milk.

MAKING THE BEST OF IT

Thin people should avoid, in their clothing, stripes, particularly if they run up and down, for they accentuate the height. *Modistes* will tell you that thin folks should wear the cross lines, fluffy ruffles of transparent materials that give the cross-line effect without spoiling the general lines of the gown. (See Fig. 25.) Dress becomingly. You don't fall very far amiss by selecting materials of the color of your eyes. Let the hair be dressed becomingly, rather flatly, for too high a headdress will add apparent height to the already tall body.

APPENDICES

APPENDIX A

THE tables, here given, will be easily understood and fully comprehended by a study of the following explanation.

For example, take the second food — barley. In one hundred parts of barley there is found to be 10.5 per cent of protein. The next column is headed "Calories in one ounce, 12.1." In other words, the protein (10.5 per cent) in one ounce of barley, contains just 12.1 calories. In the next column, barley is found to contain 2.4 per cent of fat, while the food calories in the fat contained in one ounce are 6.3. That is, the fat in each ounce of barley contains just 6.3 calories. And so with starches. The ounce of barley would contain 66.7 per cent of starch, while this percentage of starch in each ounce of barley would yield 77.3 calories.

The salts represent the percentage in 100 parts, and barley contains 2.6 per cent. The cellulose, likewise, is parts per cent, and barley has 3.8 per cent of cellulose.

The total nutritive value is secured by adding together all these per cents of protein, fat, starch, salts, and cellulose. This gives for barley, a total nutritive value of 86.0 per cent. This represents the food elements which can be digested in the human system except that the cellulose is less than half digested — in the neighborhood of 30 per cent.

The water content is obtained by subtracting the total nutritive value from one hundred, after the percentage of these five food elements is known. The rest of the food is water.

Under the head of "Starches and Sugars" are included all carbohydrate elements; that is, non-protein elements except fat and cellulose. In the case of the cereals and legumes and most vegetables, this carbohydrate is found as starch. In the case of the ripe fruits and some of the vegetables, it appears as sugar. The acids of fruits are also included under this head.

The total amount of calories or fuel value per ounce is secured by adding up, as in the case of barley, the protein calories, fat calories, and starch calories in one ounce of barley. This gives the total calories or fuel value of one ounce of barley as 95.7. That is, the complete burning of one ounce of barley in the body or outside the body, will yield just 95.7 calories, or heat enough to raise 95.7 kilograms of water one degree centigrade.

The proportion of protein to other elements is an important item in dietetic study. For instance, if one desires to follow the advice in the chapter on Nutrition, and adopt the modern low protein diet, he would want, on the whole, to subsist upon foods in which the protein value is about 1 part of protein to 10 of the non-protein elements.

In the estimation of calories, neither salts nor cellulose nor water are reckoned.

The total digestion time of the food tables is the average time that food remains in the stomach. This is only relatively correct. As pointed out elsewhere, mastication, the strength of the digestive juices of the stomach, and the stomach muscle, are more or less concerned in shortening or lengthening this time.

In the last column of the food tables may be found the exact amount of any raw or cooked food which will yield 100 calories. This item is designed to facilitate the computation of bills of fare and to make it more easy to arrange special and individual diet lists.

How to ascertain the calories in 1 ounce of any food when the percentage composition is known.

1. Multiply the protein percentage by 1.16
2. Multiply the fat percentage by 2.63
3. Multiply the carbohydrate (sugar, starch and acids) percentage by 1.16

Example: Take the case of barley. The per cent of protein is 10.5. This multiplied by 1.16 gives 12.1 calories in 1 ounce of barley. The fat per cent is 2.4. This multiplied by 2.63 gives 6.3 calories in 1 ounce. The carbohydrate per cent is 66.7. This multiplied by 1.16 gives 77.3 calories in 1 ounce. These calories added together—protein 12.1, fat 6.3, and carbohydrate 77.3, equal 95.7, the total number of calories in 1 ounce of barley.

How to find the percentage value of any food when the caloric value of its various elements per ounce is known.

1. Divide the protein calories of 1 ounce by 1.16
2. Divide the fat calories of 1 ounce by 2.63
3. Divide the carbohydrate calories of 1 ounce by ... 1.16

Example: Barley contains 12.1 protein calories in 1 ounce. Divide 12.1 by 1.16, which gives 10.5. The fat calories, 6.3, divided by 2.63 yields 2.4 per cent for fat. The carbohydrate calories, 77.3, divided by 1.16 gives carbohydrate percentage 66.7. The total percentage or nutritive value of barley is found by adding together these various percentages—protein 10.5, fat 2.4, carbohydrate 66.7, which, with salts 2.6 and cellulose 3.8, gives 86.0 per cent as the total nutritive value of barley.

TABLE OF FOOD COMPOSITION, FUEL AND NUTRITIVE VALUES, AMOUNT YIELDING 100 CALORIES, RATIO OF ELEMENTS, DIGESTION TIME, ETC.

FOOD SUBSTANCES	PROTEINS		FATS		STARCHES AND SUGARS (Carbohydrates)		CELLULOSE	WATER	Total Solids or Nutritive Value	Total Calories of Fuel	Per cent. of Value	Amount Containing 100 Calories	Proportion of Protein to Other Elements	Average Digestion Time (Stomach)
	Per cent	Calories in 1 oz.	Per cent	Calories in 1 oz.	Per cent	Calories in 1 oz.								
	A. CEREALS													
Arrowroot.....	10.5	12.1	—	—	82.0	95.1	—	18.0	82.0	95.1	95.1	1.0	1:7.0	2:30
Barley Grain.....	8.5	9.9	2.4	0.3	66.7	77.3	3.8	14.0	85.0	95.7	1.0	1.0	1:9.5	—
Barley, Pearl, raw.....	1.6	1.9	0.2	0.6	78.2	90.8	1.9	10.3	89.7	103.6	0.9	4.6	1:10.0	3:30
Barley, Pearl, mush.....	11.4	13.2	1.5	3.9	15.8	18.4	0.3	82.1	17.9	20.9	1.0	1.0	1:6.4	—
Barley, Flour.....	9.4	10.5	1.0	2.6	71.2	82.5	0.5	14.8	85.2	99.6	1.1	1.1	1:8.2	3:15
Barley, Bread.....	1.4	1.7	0.2	0.6	68.4	79.3	3.8	13.1	86.9	92.4	10.0	10.0	1:5.0	1:30
Barley, Gruel.....	10.0	11.6	1.9	4.9	6.6	7.7	0.5	91.3	8.7	10.0	1.0	1.0	1:7.7	—
Buckwheat Grain.....	8.9	10.3	1.6	4.1	71.8	83.2	1.9	12.7	87.3	99.7	1.0	1.0	1:8.7	—
Buckwheat Flour.....	9.7	11.3	0.9	2.4	74.3	86.1	1.0	13.5	86.5	100.5	1.0	1.0	1:6.0	3:30
Bread, Whole Wheat ..	8.9	10.4	1.8	4.8	50.0	58.0	2.5	36.9	68.1	71.7	1.4	1.4	1:7.4	3:45
Bread, Graham.....	8.0	9.3	1.4	3.7	52.4	60.8	1.9	33.2	66.8	76.4	1.3	1.3	1:7.0	3:15
Bread, White.....	9.1	10.6	1.0	4.3	54.0	63.4	0.5	35.5	64.5	76.4	1.3	1.3	1:6.2	—
Bread, Salt Rising.....	8.9	10.4	1.7	4.7	54.6	63.4	0.5	40.4	59.6	77.1	1.3	1.3	1:5.7	3:30
Bread, Fruit.....	9.0	10.4	1.0	3.0	48.0	55.6	1.0	41.0	59.0	71.5	1.4	1.4	1:8.4	—
Biscuits, Hot.....	9.8	11.4	3.5	7.8	48.0	55.6	1.0	8.6	91.4	117.5	0.8	0.8	1:9.6	3:00
Biscuits, Beaten.....	10.0	11.0	1.0	2.6	71.9	83.5	1.2	41.0	64.0	73.2	1.4	1.4	1:6.4	3:00
Bread, Unleavened.....	8.1	9.5	6.9	18.4	51.0	59.1	2.0	35.4	64.0	73.2	1.1	1.1	1:8.6	—
Buns, Sugar.....	6.8	7.9	7.6	20.2	54.4	63.2	0.5	30.1	69.9	91.1	1.0	1.0	1:11.0	3:30
Buns, Fruit.....	8.0	9.4	9.8	25.8	58.8	68.2	0.5	26.3	73.7	96.3	0.8	0.8	1:10.0	3:00
Crackers, White.....	10.0	11.7	9.5	25.1	74.5	86.5	1.0	6.9	93.1	121.7	0.8	0.8	1:8.4	3:00
Crackers, Graham.....	9.8	11.4	10.1	26.8	74.2	86.1	1.0	4.3	95.7	122.0	0.8	0.8	1:9.7	3:00
Crackers, Whole Wheat.....	11.8	13.7	11.2	29.6	72.8	84.5	1.2	2.0	95.9	122.7	0.8	0.8	1:7.2	3:15
Crackers, Oatmeal.....	11.3	13.2	10.3	27.3	69.3	80.5	1.7	3.8	86.1	113.8	0.9	0.9	1:7.5	3:30
Crackers, Fruit.....	10.2	11.4	4.8	12.6	62.5	72.6	1.0	14.9	85.1	113.1	1.0	1.0	1:8.4	—
Corn, Grain.....	11.5	13.4	8.5	22.4	63.5	79.4	1.4	13.4	85.6	103.8	0.8	0.8	1:7.1	4:30
Corn, Parched.....	8.3	9.7	8.5	22.4	71.8	84.4	1.7	4.5	95.5	120.2	0.8	0.8	1:7.1	—
Corn, Hominy, raw.....	8.3	9.7	0.6	1.6	79.4	92.2	1.0	9.7	90.3	103.5	1.0	1.0	1:9.7	—

CEREALS (CONTINUED)

Corn, Hominy, cooked...	2.2	2.6	0.1	0.5	17.8	20.7	0.3	0.5	79.1	20.9	23.8	4.2	1: 9.5
Cornstarch, raw.....	—	—	—	—	90.9	105.5	—	—	9.1	90.9	105.5	1.0	—
Cornstarch, cooked.....	—	—	—	—	22.8	26.5	—	—	77.2	22.8	26.5	4.2	2:15
Cornmeal, raw.....	9.7	11.2	3.8	7.3	69.5	80.6	1.3	1.5	14.2	85.8	101.9	1.0	1: 8.8
Cornmeal, mush.....	2.4	2.8	0.1	0.5	20.7	24.1	0.2	1.0	75.6	24.4	27.4	4.0	1: 8.7
Cornmeal Mush, baked..	0.9	1.1	0.1	0.5	20.7	24.1	0.2	1.0	75.6	24.4	27.4	4.0	1: 8.7
Cornmeal, gruel.....	0.9	1.1	0.1	0.5	20.7	24.1	0.2	1.0	75.6	24.4	27.4	4.0	1: 8.7
Corn Bread.....	7.3	8.5	4.6	12.3	44.8	52.0	1.2	1.0	41.1	13.8	12.0	8.3	1:15.0
Corn Flakes.....	8.9	10.8	0.5	1.4	78.7	91.3	0.7	1.0	10.2	89.8	103.5	1.4	1: 7.0
Corn Flakes, toasted....	10.7	12.5	5.0	13.3	79.1	91.8	1.0	2.0	2.2	97.8	117.0	0.8	1: 8.0
Corn, popped.....	3.0	3.6	1.1	2.9	11.2	23.0	1.2	3.0	80.5	19.5	29.5	0.4	1: 4.5
Corn Puffs.....	7.3	8.5	6.1	16.1	45.3	52.6	1.0	1.0	39.3	60.7	77.2	1.3	1: 8.3
Corn Cake, (hoecake)...	7.9	9.2	4.7	12.5	46.5	54.0	1.4	1.0	38.5	61.5	75.7	1.3	1: 7.8
Graham Puffs.....	8.7	10.1	2.8	7.4	52.2	60.6	1.0	2.0	33.3	66.7	78.1	1.2	3:15
Graham Gems.....	8.9	10.4	0.8	17.9	41.8	48.5	0.8	2.0	39.7	60.3	70.8	1.3	3:15
Gluten Mush, 20%.....	7.7	9.0	0.1	0.5	10.1	11.8	—	—	82.1	17.9	21.3	4.7	1: 2.3
Granola, dry.....	13.4	15.6	0.4	1.1	73.2	85.0	1.0	2.9	16.0	88.0	101.7	1.0	1: 6.5
Irish Moss.....	22.0	25.5	1.4	3.6	56.3	65.3	1.4	2.9	16.0	84.0	94.4	1.0	1: 3.8
Millet.....	10.5	12.1	4.2	11.0	68.2	79.1	2.8	2.5	11.8	88.2	110.5	0.9	1: 7.8
Macaroni, raw.....	9.0	10.4	0.3	0.7	70.8	81.9	0.8	—	13.1	86.9	93.0	1.0	1: 9.6
Macaroni, cooked.....	3.0	3.5	1.6	4.0	15.8	18.4	1.0	1.0	78.6	21.4	25.9	4.0	1: 7.1
Oats, grain.....	10.7	12.4	5.0	13.1	58.3	67.6	3.3	10.5	12.2	87.8	93.1	1.0	1: 8.3
Oats, Rolled, raw.....	16.8	19.5	7.4	19.5	66.5	77.2	2.0	0.9	6.4	93.6	116.2	0.8	1: 5.6
Oats, Rolled, mush.....	3.0	3.5	0.4	1.1	11.0	12.8	1.0	0.9	83.7	17.3	17.4	5.7	1: 5.6
Oatmeal, raw.....	10.0	11.6	5.0	13.5	69.5	80.6	2.0	0.9	12.6	87.4	103.7	1.0	1: 8.7
Oatmeal, mush.....	3.0	3.5	0.4	1.3	11.5	13.4	1.5	0.9	82.7	17.3	18.0	5.5	1: 5.7
Oatmeal, gruel.....	1.2	1.4	0.4	1.1	6.3	7.4	1.0	1.0	99.1	8.9	9.9	10.0	1: 7.4
Rye, German, grain.....	12.0	13.9	1.0	4.9	68.1	78.0	1.9	0.5	15.6	84.4	97.7	1.0	1: 7.3
Rye Flour.....	11.5	13.3	2.0	5.2	68.6	79.5	1.1	1.0	15.8	84.2	98.0	1.0	1: 7.3
Rye Bread.....	9.8	10.5	0.6	1.6	53.5	62.1	1.5	0.5	34.1	65.9	74.2	1.0	1: 5.6
Rye, gruel.....	1.3	1.5	0.2	5.2	6.4	7.4	1.5	0.5	91.6	8.4	14.1	7.1	1: 6.4
Rice, grain.....	6.7	7.7	0.9	2.3	78.5	91.0	0.8	0.5	12.6	87.4	101.0	1.0	1:13.0
Rice, boiled.....	2.8	3.3	0.1	0.3	24.5	28.5	0.5	0.5	71.9	28.1	32.1	3.1	1:10.0
Rice Flakes.....	7.3	8.5	0.3	0.9	83.1	96.6	0.6	0.5	8.2	91.8	106.0	1.0	1:12.0
Rice Flakes, toasted....	4.0	4.6	0.5	1.3	85.0	98.6	0.5	—	10.0	90.0	104.5	1.0	1:22.0
Sago, raw.....	2.3	2.7	0.2	0.6	19.9	23.1	0.3	—	77.3	22.7	26.4	3.8	2.45
Sago, cooked.....	1.2	1.3	0.4	1.0	81.0	93.9	0.2	—	17.2	82.8	96.2	1.0	1:69.0
Tapioca, raw.....	0.1	0.2	0.1	0.5	22.0	25.6	0.1	—	77.7	22.3	26.3	3.8	2.30
Tapioca, cooked.....	11.6	13.4	1.3	3.4	71.0	82.3	1.6	1.7	12.8	87.2	99.1	1.0	1: 6.5
Wheat, Michigan.....	11.2	13.0	1.7	4.5	75.9	88.1	1.6	2.5	7.1	92.9	105.6	1.0	1: 7.0
Wheat, Cracked, raw....	—	—	—	—	—	—	—	—	—	—	—	—	—

TABLE OF FOOD COMPOSITION, ETC.,—CONTINUED

FOOD SUBSTANCES	PROTEINS		FATS		STARCHES AND SUGARS (Carbohydrates)		SALTS	WATER	Per cent Solids or Nutritive Value	Total Calories or Fuel Value	Per cent. Calories or Fuel Value	Amount Containing 100 Ounces	Proportion of Protein to Other Elements	Average Digestion Time (Stomach)
	Per cent	Calories in 1 oz.	Per cent	Calories in 1 oz.	Per cent	Calories in 1 oz.								
CEREALS (CONTINUED)														
Wheat, Cracked, cooked.	2.8	3.3	0.3	1.0	18.1	22.0	1.0	75.3	24.7	26.3	26.3	3.8	1: 8.8	3:45
Wheat Grits, raw.....	10.6	12.3	2.0	5.3	76.4	88.7	1.0	10.0	90.0	106.3	106.3	1.0	1: 8.4	
Wheat Grits, mush.....	2.2	2.6	0.3	0.8	15.5	18.0	1.0	81.0	19.0	21.4	21.4	4.7	1: 8.6	3:15
Wheat Flakes, toasted ..	9.4	11.0	1.4	3.9	76.6	88.9	1.0	10.1	89.9	103.8	103.8	1.0	1: 9.5	2:00
Wheat Flour, entire.....	11.1	12.8	1.1	2.8	75.4	87.4	0.6	10.3	89.7	103.0	103.0	1.0	1: 8.0	
Wheat Flour, Graham....	11.7	13.5	1.7	4.4	69.9	81.0	1.8	13.0	87.0	98.9	98.9	1.0	1: 7.4	
Wheat Flour, fine.....	7.9	9.2	1.4	3.7	76.9	89.1	0.5	13.3	86.7	102.0	102.0	1.0	1: 10.0	
Wheat Flour, patent.....	10.8	12.6	1.1	2.9	75.6	87.7	1.0	11.5	88.5	103.2	103.2	1.0	1: 8.2	
Wheat Flour, pastry.....	13.3	15.5	2.2	5.9	71.8	83.3	0.5	12.2	87.8	104.7	104.7	1.0	1: 6.6	
Wheat Farina, raw.....	11.2	13.0	1.4	3.7	76.7	89.0	0.9	9.8	90.2	105.7	105.7	1.0	1: 8.0	
Wheat Farina, mush.....	2.2	2.6	0.3	0.8	15.5	18.0	0.5	81.5	18.5	21.4	21.4	4.7	1: 8.4	3:00
Whole Wheat Puffs.....	11.2	13.1	0.4	2.4	43.0	50.9	0.4	46.0	64.0	88.4	88.4	1.1	1: 5.7	2:45
Zwieback, white.....	9.8	11.4	0.9	2.6	73.9	85.8	0.8	14.6	85.4	99.8	99.8	1.0	1: 8.6	2:15
B. FRUITS														
Apples, raw.....	0.4	0.5	0.4	1.3	14.3	16.6	2.5	80.3	19.7	18.4	18.4	5.4	1: 49	3:30
Apple Juice.....					14.6	17.0	1.0	84.4	15.6	17.0	17.0	5.9		1:00
Apple Sauce.....	0.4	0.5	0.4	1.3	20.5	23.8	1.5	75.2	24.8	25.6	25.6	4.0	1: 62	2:00
Apples, baked.....	0.5	0.6	0.2	0.6	28.4	28.4	2.0	74.7	25.3	30.3	30.3	3.3	1: 50	1:45
Apples, dried.....	1.3	1.5	0.4	0.6	64.0	74.2	3.0	51.1	24.4	76.3	76.3	1.3	1: 50	
Apricots, raw.....	1.1	1.3			13.4	15.6	2.0	78.5	21.5	16.9	16.9	6.0	1: 19	3:00
Apricots, cooked.....	1.1	1.2	0.5	1.6	17.6	20.5	1.0	76.3	23.7	21.7	21.7	4.7	1: 21	2:30
Bananas, raw.....	1.2	1.5	0.6	1.6	21.2	25.7	0.9	75.6	24.4	28.8	28.8	3.5	1: 20	3:15
Blackberries, raw.....	1.2	1.5	0.9	2.6	12.7	12.7	0.8	79.7	20.3	16.8	16.8	6.0	1: 17	2:00
Blackberry Juice.....					25.2	30.3	0.2	74.6	25.4	30.3	30.3	3.3		1:00
Blackberry Sauce.....	0.6	0.8	1.2	3.3	25.0	29.1	0.5	66.7	33.3	33.2	33.2	3.3	1: 55	1:30

FRUITS (CONTINUED)	0.6	0.7	0.6	1.6	16.5	19.4	0.7	2.8	78.8	21.2	21.7	4.7	1: 35
Blueberries, raw.....	0.6	0.9	2.7	7.2	16.2	18.9	0.2	—	83.6	16.4	18.9	5.4	1:45
Blueberry Juice.....	0.7	0.9	2.7	7.2	16.2	18.9	0.2	—	83.6	16.4	18.9	5.4	1:45
Cherries, raw.....	1.1	1.2	0.8	2.2	14.0	17.0	0.5	2.0	80.0	20.0	25.1	4.0	1: 28
Cherry Sauce.....	1.1	1.2	0.7	2.0	15.3	19.5	0.9	5.0	75.7	24.3	22.8	4.4	1: 22
Cherries, dried.....	2.0	2.3	0.3	0.8	46.5	53.9	1.6	2.4	67.4	32.6	32.6	3.1	1: 20
Cranberries, raw.....	0.4	0.5	—	—	3.8	4.4	0.5	6.3	47.2	52.8	57.2	1.8	1: 26
Cranberry Sauce.....	0.2	0.3	0.4	1.1	30.7	35.5	0.2	6.3	89.0	11.0	4.9	2.0	1: 27
Currants, Red, raw.....	1.5	1.7	—	—	12.8	14.9	0.8	4.6	62.2	37.0	36.9	2.7	1: 18
Cantaloupes.....	0.6	0.8	—	—	9.3	10.9	1.0	5.0	84.1	19.7	16.7	6.0	1: 13
Dates.....	2.1	2.5	2.8	7.5	78.8	91.5	0.2	1.0	80.3	15.9	11.6	8.6	1: 26
Figs, dried.....	4.3	5.0	0.3	0.8	74.6	86.0	3.0	12.1	15.1	84.9	101.5	1.0	1: 40
Figs, steamed.....	3.9	4.6	0.2	0.6	62.8	73.9	2.0	10.0	5.7	94.3	92.4	1.1	1: 22
Fruit Jelly.....	1.7	2.0	—	—	56.8	67.0	1.0	—	21.1	78.9	79.1	1.3	1: 22
Fruit Gelée.....	1.2	1.4	—	—	27.2	32.6	—	—	59.5	69.0	69.0	1.4	1: 35
Gooseberries, raw.....	0.4	0.5	—	—	8.1	10.4	0.5	3.5	71.9	28.1	34.0	3.0	1: 23
Gooseberry Sauce.....	0.4	0.5	—	—	16.2	18.9	0.2	2.0	87.5	12.5	10.9	0.2	1: 31
Grape Fruit.....	0.7	0.9	0.1	0.5	10.1	11.8	1.2	3.0	81.2	16.8	19.4	5.1	1: 47
Grapes, raw.....	1.2	1.5	1.6	4.3	18.4	22.4	0.5	3.6	84.0	16.0	13.2	7.6	1: 27
Grape Juice.....	1.2	1.5	1.6	4.3	20.5	23.8	0.1	—	74.7	25.3	28.2	3.5	1: 21
Lemons.....	1.1	1.2	0.7	1.9	8.7	10.1	0.8	2.0	79.4	20.6	23.8	4.2	—
Lemon Juice.....	—	—	—	—	9.8	11.4	0.3	—	86.7	13.3	13.2	7.6	1: 12
Lemonade.....	—	—	—	—	9.8	11.4	0.3	—	89.9	10.1	11.4	8.0	—
Lemon Sauce.....	0.3	0.4	2.6	7.1	31.7	36.8	0.1	—	89.9	10.1	11.4	8.0	—
Nectarines.....	0.6	0.7	—	—	16.0	18.6	0.7	1.5	65.3	34.7	44.3	2.3	1:116
Olives, ripe.....	1.7	2.0	26.3	69.1	4.3	5.0	0.4	1.0	81.2	18.8	19.3	5.0	1: 30
Olive Oil.....	—	—	100.0	263.0	—	—	—	—	66.3	33.7	76.1	1.3	1: 20
Oranges.....	0.7	0.9	0.1	0.5	11.6	13.5	1.3	3.0	83.3	16.7	263.0	0.4	—
Orange Juice.....	0.7	0.9	0.1	0.5	13.0	15.1	1.0	—	86.0	14.0	14.9	6.7	1: 24
Peach Juice.....	0.7	0.9	0.1	0.5	10.0	11.6	0.8	6.1	82.3	17.7	13.0	7.7	1: 25
Peaches, raw.....	0.7	0.9	0.1	0.5	17.9	20.8	0.5	—	81.6	18.4	20.8	4.8	—
Peach Sauce.....	0.7	0.9	0.1	0.5	10.9	19.7	0.5	4.0	81.4	18.0	21.1	4.7	1: 26
Peaches, dried.....	2.0	2.3	0.5	1.3	38.6	44.7	1.5	6.0	51.4	48.6	48.3	2.1	1: 24
Pears, raw.....	0.6	0.7	0.4	1.3	14.2	16.5	0.5	4.4	79.9	20.1	18.5	5.4	1: 33
Pear Juice.....	0.6	0.7	0.4	1.3	22.0	25.6	0.2	—	77.8	22.2	25.6	4.0	—
Pear Sauce.....	0.6	0.7	0.4	1.1	20.0	23.3	0.2	3.0	75.8	24.2	25.1	4.0	1: 40
Pears, dried.....	2.0	2.3	1.0	2.6	48.5	59.2	1.7	6.9	39.9	66.1	61.1	1.0	1: 30
Pineapple, raw.....	0.4	0.5	0.3	0.8	9.7	11.3	1.4	9.0	79.2	20.8	12.6	8.0	1: 52
Pineapple Juice.....	—	—	—	—	18.7	21.8	1.0	—	80.3	19.7	21.8	4.6	—
Pineapple Sauce.....	0.4	0.5	0.3	0.9	16.7	19.4	1.0	4.0	77.6	22.4	20.8	5.0	1: 56

TABLE OF FOOD COMPOSITION, ETC.,—CONTINUED

FOOD SUBSTANCES	PROTEINS		FATS		STARCHES AND SUGARS (Carbohydrates)		SALTS		CELLULOSE		WATER		Total Solids or Nutritive Value		Per cent. Calories	Per cent. Total Value	Amount Contain in 100 Calories	Proportion of Protein to Other Elements	Average Digestion Time. (Stomach)	Hrs. Min.
	Per Cent	Calories in 1 oz.	Per Cent	Calories in 1 oz.	Per Cent	Calories in 1 oz.	Per Cent	Calories in 1 oz.	Per Cent	Calories in 1 oz.	Per Cent	Calories in 1 oz.	Per Cent	Calories in 1 oz.						
Plums, raw	1.1	1.2	—	—	20.2	23.5	0.9	9.0	68.8	31.2	24.8	4.0	1:22	2:30						
Plum Juice	0.8	1.1	—	—	34.3	39.8	0.5	7.0	65.2	34.8	39.8	2.5	1:51	1:00						
Prunes, dried	2.1	2.5	—	—	73.6	85.5	1.5	1.5	21.3	40.8	37.4	2.6	1:37	2:00						
Prune Sauce	0.6	0.8	—	—	22.7	26.4	1.0	1.5	74.1	25.9	27.5	3.6	1:43	3:00						
Prune Marmalade	0.6	0.8	0.1	0.3	37.8	43.9	1.0	1.5	59.0	41.0	45.0	2.2	1:68	2:00						
Raisins	2.0	3.0	3.3	8.8	76.5	88.8	1.4	1.7	15.1	84.9	100.0	1.0	1:42	2:30						
Raisins, stewed	1.7	2.0	2.1	5.8	49.6	57.6	0.8	1.0	44.8	55.2	65.4	1.5	1:32	2:00						
Raspberries, Black	1.7	2.0	0.7	2.6	12.6	14.7	0.7	7.4	76.7	23.3	19.3	5.0	1:13	2:00						
Raspberry Juice, Black	1.3	1.6	0.8	2.2	25.3	29.4	0.4	—	74.3	25.7	20.4	3.4	1:25	1:00						
Raspberry Sauce, Black	1.1	1.2	—	—	23.7	27.5	0.5	6.0	67.7	32.3	31.3	3.2	1:17	2:00						
Raspberries, Red	1.1	1.2	—	—	12.6	14.7	0.9	4.5	80.9	19.1	15.9	6.3	1:21	1:00						
Raspberry Juice, Red	1.1	1.2	—	—	20.2	23.7	0.5	—	79.3	20.7	23.7	4.2	1:21	2:00						
Raspberry Sauce, Red	1.1	1.2	0.6	1.6	18.9	23.0	0.6	3.5	75.9	24.1	23.2	4.2	1:11	2:00						
Raspberries, raw	1.1	1.2	0.6	1.6	7.4	8.6	0.9	2.3	87.7	12.3	11.4	8.8	1:11	2:00						
Strawberry Juice	0.7	0.9	0.3	1.0	21.0	24.5	0.5	—	78.9	21.5	24.5	4.0	1:52	1:00						
Strawberry Sauce	0.8	1.0	0.3	1.1	19.5	22.7	0.6	2.5	76.4	23.6	24.6	4.0	1:15	1:30						
Tomatoes, raw	2.0	2.4	0.9	2.4	6.0	4.6	1.0	0.8	93.2	6.8	6.7	15.0	1:5.2	2:15						
Tomato Sauce	1.2	1.4	0.1	0.5	4.0	4.7	0.8	0.8	89.5	10.5	11.8	8.8	1:5.7	2:00						
Tomatoes, canned	2.0	2.4	0.3	0.8	9.1	10.6	0.5	3.0	87.6	12.4	13.8	7.2	1:6.2	2:00						
Tomatoes, breaded	0.4	0.5	0.1	0.5	6.7	7.8	1.0	3.0	88.8	11.2	8.8	11.3	1:28	3:00						
Watermelon	0.8	1.1	—	—	7.5	8.7	1.0	12.3	78.4	21.6	9.8	10.2	1:27	2:00						
Whortleberry	0.8	1.1	—	—	—	—	—	—	—	—	—	—	—	—						

C. NUTS

Almonds	21.1	24.5	55.6	146.4	5.0	5.8	3.0	6.5	8.8	91.2	176.7	0.6	1: 4.3	2.45
Beechnuts	25.9	25.5	50.2	132.0	7.2	8.3	2.5	4.0	14.2	85.8	185.8	0.6	1: 3.8	2.45
Brazils	17.0	19.8	60.7	159.6	7.0	8.2	2.0	3.5	9.8	90.2	187.6	0.5	1: 5.2	3.15
Butternuts	20.0	23.2	62.0	163.2	3.5	4.1	2.4	4.0	8.1	91.9	190.5	0.5	1: 4.5	3.30
Cocanuts	5.6	6.6	51.2	134.9	27.1	32.5	1.0	2.0	12.2	87.8	174.0	0.6	1:15.0	3.30
Cocanuts, prepared.....	6.2	7.3	54.2	142.5	31.6	36.7	1.0	2.9	4.1	95.9	186.5	0.5	1:15.0	2.30
Chestnuts	5.7	7.0	1.8	4.7	54.6	33.3	3.3	3.4	31.2	68.8	75.6	1.3	1:12.0	3.00
Filberts (Hazelnuts)	15.6	18.2	50.1	147.5	13.1	15.2	2.5	3.2	9.5	90.5	180.9	0.5	1: 6.0	3.00
Hickorynuts	15.5	18.0	58.3	153.3	11.4	13.2	2.3	3.0	9.5	90.5	184.6	0.5	1: 6.0	3.30
Hickorynuts, prepared.....	23.7	27.6	27.9	73.6	44.1	51.2	2.0	—	2.3	97.5	152.4	0.6	1: 4.0	2.30
Pecans	9.6	11.2	71.4	188.0	8.3	9.6	2.0	2.0	6.7	93.2	208.8	0.5	1: 9.7	2.45
Peanut Butters	20.7	24.0	39.1	102.9	14.5	16.8	3.0	13.9	8.5	91.5	143.7	0.7	1: 4.4	3.30
Peanut Butter	10.0	11.6	15.5	40.7	8.5	9.8	1.5	5.0	59.5	40.5	62.1	1.6	1: 4.5	2.30
Pinenuts (Pignolias).....	30.0	34.8	50.0	131.7	6.8	8.0	3.5	—	5.7	94.3	174.5	0.6	1: 3.1	3.00
Protose	19.6	22.8	5.9	16.0	8.7	10.2	1.5	—	64.3	35.7	40.0	2.0	1: 1.8	3.00
Walnuts	16.7	19.4	57.2	150.4	10.2	11.8	3.0	4.5	8.4	91.6	181.6	0.5	1: 5.4	3.30

D. VEGETABLES

Artichoke.....	1.8	1.1	0.5	1.3	7.0	8.1	1.5	5.0	85.0	15.0	10.5	10.0	1:15.0	2.30
Asparagus, raw.....	1.8	2.0	0.3	0.7	2.6	3.0	0.0	1.0	93.7	6.3	5.7	18.0	1: 3.5	—
Asparagus, cooked	2.1	2.5	3.3	8.8	2.2	2.6	0.4	1.0	91.0	9.0	13.9	7.6	1: 4.2	2.30
Beans, String, raw.....	1.1	1.2	0.1	0.5	3.8	4.4	0.2	0.5	94.3	5.7	6.1	12.1	1: 5.1	—
Beans, String, cooked....	0.7	0.9	1.1	2.9	1.8	2.2	0.2	0.2	95.7	4.3	6.0	16.6	1: 6.1	2.45
Beets, raw	1.3	1.5	0.4	1.0	14.0	16.2	0.8	1.1	82.4	17.6	18.7	5.4	1:13.0	—
Beets, cooked	2.3	2.7	0.1	0.5	7.3	8.0	0.5	1.1	88.7	11.3	11.8	8.0	1: 4.8	3.00
Beet Greens, cooked.....	2.2	2.6	3.0	9.1	3.1	3.7	0.3	1.5	89.9	10.1	15.4	6.6	1: 4.5	3.30
Cabbage, raw	1.9	2.2	0.2	0.5	4.9	5.6	1.2	1.3	90.5	8.3	8.3	12.1	1: 5.0	2.30
Cabbage, cooked	0.6	0.8	1.1	2.9	1.6	1.9	0.3	1.3	95.1	4.9	5.6	18.0	1: 8.1	4.30
Carrots, raw	1.2	1.3	0.3	0.7	9.1	10.5	1.0	1.5	86.9	13.1	12.5	8.0	1:10.0	—
Carrots, cooked	0.5	0.6	0.7	2.0	7.0	8.1	0.4	1.5	89.9	10.1	10.7	10.0	1:20.0	3.30
Cauliflower, raw.....	2.5	2.9	0.3	0.7	4.5	5.2	0.8	0.9	91.0	9.0	8.8	12.1	1: 3.6	—
Cauliflower, cooked.....	0.8	1.0	1.0	2.6	4.0	4.6	0.5	0.9	92.8	7.2	8.2	12.1	1: 9.0	2.30
Celery, raw.....	1.1	1.3	0.1	0.5	3.3	3.9	0.8	1.4	93.3	6.7	5.7	18.0	1: 6.0	3.30
Celery, cooked.....	0.8	1.0	0.5	1.3	2.0	2.4	0.5	1.4	94.8	5.2	4.7	21.0	1: 6.0	3.00
Cucumber	0.7	0.9	0.1	0.5	3.1	3.6	0.8	0.8	94.9	5.1	4.7	20.0	1: 7.0	4.00
Corn, Green, cooked.....	3.1	3.6	1.1	2.9	18.9	22.0	1.0	2.0	76.6	23.4	28.5	3.5	1: 7.5	3.45

TABLE OF FOOD COMPOSITION, ETC.,—CONTINUED

FOOD SUBSTANCES	PROTEINS		FATS		STARCHES AND SUGARS (Carbohydrates)		SALTS		CELLULOSE		WATER		Solids or Nutritive Value		Total Calories or Fuel Value		Ounces Contain- ing 100 Calories	Proportion of Protein to Other Elements	Average Digestion Time (Stomach)	Hrs. Min.
	Per cent	Calories in 1 oz.	Per cent	Calories in 1 oz.	Per cent	Calories in 1 oz.	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent					
Dandelion Greens, cook'd	2.4	2.8	1.0	2.7	10.7	12.5	0.6	1.7	88.1	9.6	16.4	18.0	5.5	1: 6.8	3:30					
Greens, Mustard and Kale.....	2.6	3.0	0.5	1.3	4.4	5.1	2.4	2.0	88.1	9.6	11.9	9.4	10.2	1: 4.5	3:30					
Egg Plant, raw.....	1.2	1.4	0.3	0.8	5.1	6.0	1.0	1.0	91.5	8.5	8.5	8.2	12.1	1:18.0						
Egg Plant, cooked.....	1.1	1.2	0.7	2.0	5.1	6.0	1.0	1.0	91.5	8.5	8.5	9.2	10.8	1: 8.0	2:45					
Mushrooms.....	2.5	2.9	1.0	2.6	5.0	5.8	1.0	0.5	90.0	10.0	10.0	11.3	8.8	1: 4.0	3:00					
Lettuce.....	1.2	1.4	0.3	0.8	2.8	3.4	1.1	1.0	94.0	5.4	5.4	5.6	18.0	1: 4.5	2:30					
Onions, raw.....	1.6	1.9	0.3	0.8	10.0	11.6	0.9	1.3	85.9	14.1	14.3	14.3	7.0	1: 8.8	3:00					
Onions, cooked.....	1.2	1.4	1.8	4.8	4.9	5.7	0.4	1.0	90.7	9.3	9.3	11.9	8.8	1: 7.7	2:30					
Peas, Green, cooked.....	6.7	7.8	3.4	9.1	15.0	17.5	1.0	0.3	73.6	26.4	26.4	34.4	3.0	1: 3.8	3:30					
Parsnips, raw.....	1.2	1.3	0.6	1.5	7.2	8.3	1.0	6.0	84.0	16.0	16.0	11.1	8.8	1:13.0						
Parsnips, cooked.....	1.4	1.7	2.2	5.9	8.1	9.5	0.7	6.0	81.6	18.4	17.1	17.1	5.8	1:13.0	4:00					
Pumpkin, raw.....	1.1	1.2	0.2	0.5	6.5	7.5	0.7	1.2	90.3	9.7	9.7	9.2	10.8	1: 8.8						
Pumpkin, cooked.....	1.2	1.4	0.9	2.4	13.9	15.0	0.5	1.2	82.3	17.7	17.7	18.8	5.4	1:14.0	3:45					
Potatoes raw.....	1.5	1.7	0.2	0.5	20.8	34.8	1.0	0.2	67.3	32.7	32.7	37.0	2.6	1:21.0						
Potatoes, boiled.....	2.4	2.9	0.1	0.5	21.0	24.4	0.2	—	76.3	23.7	23.7	27.8	3.7	1: 9.0	3:15					
Potatoes, steamed.....	2.4	2.9	0.1	0.5	21.2	24.7	0.2	—	76.1	23.9	23.9	28.1	3.5	1: 9.0	3:15					
Potatoes, mashed.....	2.5	3.0	3.0	8.0	17.0	20.8	0.2	—	77.3	22.7	22.7	31.8	3.1	1: 9.0	3:00					
Potatoes, creamed.....	2.4	2.9	6.0	15.7	17.0	20.8	0.2	—	74.4	25.6	25.6	39.4	2.5	1:10.0	3:00					
Potato Cakes.....	2.5	3.0	3.0	8.0	18.1	21.1	0.2	—	76.2	23.8	23.8	32.1	3.1	1: 9.0	3:00					
Potatoes, baked.....	2.9	3.4	0.1	0.5	24.9	28.9	0.9	—	71.2	28.8	28.8	32.8	3.1	1: 9.0	2:30					
Potato Gruel.....	0.7	0.9	—	—	8.1	9.4	0.5	—	90.7	9.3	9.3	10.3	10.0	1:13.0	1:00					
Rhubarb.....	1.0	1.1	—	—	3.0	3.4	1.0	1.0	94.0	6.0	6.0	4.5	21.0	1: 6.0	2:45					
Radishes.....	1.2	1.5	0.1	0.5	5.6	6.7	1.4	2.4	89.3	10.7	10.7	8.7	12.1	1: 9.0	3:30					
Spinach, raw.....	3.5	4.0	0.6	1.5	4.5	5.2	2.9	1.8	86.7	13.3	13.3	10.7	10.0	1: 3.8						
Spinach, cooked.....	2.1	2.5	4.1	10.9	2.5	3.0	1.5	1.8	88.0	12.0	12.0	16.4	6.0	1: 5.7	3:00					

VEGETABLES (CONTINUED)

Squash, raw.....	1.3	1.6	0.4	1.3	9.0	10.5	0.9	1.0	87.4	12.6	13.4	7.6	1.9.0
Squash, canned.....	0.8	1.0	0.4	1.3	10.6	12.3	0.8	1.0	86.4	13.6	14.6	7.0	1.17.0
Squash, baked.....	1.3	1.5	0.8	2.2	13.7	16.0	0.9	1.0	82.3	17.7	19.8	5.0	1.13.0
Sauer kraut.....	2.0	2.3	—	—	4.0	4.6	2.0	2.0	90.0	10.0	6.9	16.0	1.5.0
Succotash, canned.....	3.6	4.2	0.9	2.6	17.8	21.7	1.0	1.5	75.2	24.8	28.5	3.5	1.7.0
Sweet Potato, raw.....	1.5	1.7	0.3	0.7	16.5	19.1	2.6	0.8	78.3	21.7	21.5	4.6	1.14.0
Sweet Potato, cooked.....	3.0	3.5	2.1	5.6	42.3	49.1	1.4	0.8	50.4	49.6	58.2	1.7	1.16.0
Turnips, raw.....	1.5	1.7	0.2	0.5	8.3	9.6	0.9	1.4	87.7	12.3	11.8	8.8	1.8.0
Turnips, cooked.....	0.5	0.6	1.1	2.8	2.3	2.7	1.4	1.4	94.4	5.6	6.1	16.0	1.11.0
Vegetable Broth.....	2.4	2.8	—	—	0.1	0.1	0.3	—	97.2	2.8	2.9	34.0	1.1.0
Vegetable Oyster.....	0.8	1.0	2.0	5.3	3.5	4.1	0.9	1.0	91.9	8.1	10.4	10.0	1.3.3

E. FLESH FOODS

Beef, average lean.....	20.7	24.0	1.7	4.4	—	—	1.2	—	76.4	23.6	28.4	3.6	1.1.1
Beef, average fat.....	16.7	19.3	20.3	77.0	—	—	0.9	—	53.1	46.9	96.3	1.0	1.2.8
Beef Steak, Round.....	20.0	23.2	2.0	5.2	—	—	2.0	—	70.0	24.0	28.4	3.6	1.1.2
Beef, Sirloin.....	19.2	22.2	5.9	15.5	—	—	1.4	—	73.5	26.5	37.7	2.6	1.1.3
Beef, boiled.....	35.0	40.6	2.1	2.4	—	—	1.0	—	61.9	38.1	43.0	2.3	1.1.0
Beef, roast.....	22.9	26.5	5.2	6.0	—	—	1.0	—	70.9	29.1	32.5	3.1	1.1.2
Beef, salted.....	21.8	25.2	11.5	13.3	—	—	11.7	—	55.0	45.0	38.5	2.6	1.2.0
Beef, smoked.....	27.1	31.4	15.3	17.7	—	—	10.6	—	47.0	53.0	49.1	2.0	1.1.9
Beef Tongue.....	17.1	19.8	18.1	20.9	—	—	1.0	—	63.8	30.2	41.7	2.4	1.2.1
Beef Soup.....	0.8	0.9	4.0	10.5	—	—	1.0	—	94.2	5.8	11.4	8.8	1.7.2
Beef Tea.....	0.7	0.8	—	—	—	—	0.5	—	98.8	1.2	0.8	125.0	1.1.7
Beef Extract, Leibig.....	30.8	35.7	—	—	—	—	22.4	—	46.8	53.2	35.7	2.8	1.1.7
Bacon, Salted.....	9.1	10.5	75.7	87.8	—	—	0.1	—	15.1	84.9	98.3	1.0	1.9.3
Bologna Sausage.....	18.8	21.2	15.8	18.3	—	—	0.3	—	62.4	37.6	39.5	2.5	1.2.0
Chicken, fat.....	18.5	21.4	8.0	9.2	—	—	1.0	—	72.5	30.6	30.6	3.2	1.1.4
Codfish, fresh.....	11.1	12.8	0.2	0.5	—	—	1.2	—	87.5	12.5	13.3	7.6	1.1.1
Codfish, dried.....	16.2	18.8	0.4	1.0	—	—	1.3	—	82.1	17.9	19.8	5.0	1.1.1
Clam Chowder.....	7.0	8.1	0.3	0.7	2.0	2.3	1.0	—	87.4	12.6	11.1	8.8	1.1.8
Duck, Wild.....	23.8	27.6	3.6	9.4	—	—	1.0	—	71.0	28.4	37.0	2.6	1.1.1
Eel, Fresh Water.....	12.8	14.8	28.3	74.4	—	—	0.8	—	58.1	41.9	89.2	1.1	1.3.2
Frogs' Legs.....	10.0	11.6	2.0	5.2	—	—	1.3	—	86.7	13.3	6.8	6.6	1.1.3
Goose.....	15.9	18.4	45.5	119.6	—	—	0.5	—	38.1	61.9	138.0	0.7	1.3.9
Herring.....	12.0	13.9	5.0	13.1	—	—	0.9	—	82.1	17.9	27.0	3.7	1.1.4
Herring, smoked.....	36.4	42.2	15.8	41.5	—	—	1.5	—	46.3	53.7	83.7	1.2	1.1.4
Lard.....	0.3	0.4	99.0	200.3	—	—	—	—	0.7	99.3	200.7	0.3	1.33.1

TABLE OF FOOD COMPOSITION, ETC.,—CONTINUED

FOOD SUBSTANCES	PROTEINS		FATS		STARCHES AND SUGARS (Carbohydrates)		SALTS	CELLULOSE	WATER	Per Cent		Proportion of Protein to Other Elements	Average Digestion Time (Stomach)		
	Per Cent	Calories in 1 oz.	Per Cent	Calories in 1 oz.	Per Cent	Calories in 1 oz.				Total Solids or Nutritive Value	Total Calories or Fuel Value			Amount Contained in 100 Ounces	Hrs. Min.
Lobster	17.0	19.8	2.0	5.2	—	—	2.5	—	78.5	21.5	24.9	1:1.2	3:30		
Mutton, lean	17.1	19.8	5.2	13.6	—	—	1.1	—	76.6	23.4	33.4	1:1.3	3:15		
Mackerel	19.3	22.3	8.0	21.0	—	—	1.3	—	71.4	28.6	43.3	1:1.4	3:30		
Oysters	6.0	6.9	3.4	3.4	3.3	3.8	1.1	—	88.3	11.7	14.1	1:1.9	3:00		
Pork, average lean	20.2	23.4	6.8	17.8	—	—	1.1	—	71.9	28.1	41.2	1:1.3	4:30		
Pork, average fat	14.5	18.8	37.3	98.0	—	—	0.7	—	47.5	52.5	114.8	1:3.5	5:00		
Pork Chops	16.0	18.5	7.0	18.4	—	—	0.5	—	76.5	23.5	36.9	1:1.4	4:15		
Pork, salted	23.0	26.0	7.0	18.4	—	—	6.0	—	64.0	36.0	45.0	1:1.5	5:00		
Pork, smoked	25.0	29.0	8.1	21.3	—	—	7.1	—	69.8	30.2	50.3	1:1.2	5:15		
Pork, Ham, smoked	25.0	29.0	36.5	95.0	—	—	10.0	—	28.5	71.5	124.0	1:2.4	5:30		
Partridge	25.2	29.2	1.4	3.6	—	—	1.3	—	72.1	27.9	32.8	1:1.1	3:30		
Pigeon	22.1	25.6	1.0	2.6	—	—	1.0	—	75.9	24.1	28.2	1:1.0	3:30		
Pike	18.3	21.2	0.6	1.5	—	—	1.0	—	80.9	19.1	22.7	1:1.0	3:30		
Rabbit	21.4	24.8	9.7	25.5	—	—	1.1	—	67.8	32.2	58.3	1:1.4	4:00		
Salmon	21.6	25.0	12.7	33.4	—	—	1.3	—	64.4	35.6	58.4	1:1.6	3:30		
Snail	16.1	18.6	1.0	2.6	—	—	1.5	—	81.4	18.6	21.2	1:1.1	3:00		
Shad	17.7	21.6	9.4	24.7	—	—	1.3	—	70.6	29.4	46.3	1:1.5	2:30		
Sweetbreads	17.0	19.7	3.0	7.8	—	—	1.3	—	78.7	21.3	27.5	1:1.2	2:30		
Sturgeon	18.0	22.8	1.9	4.9	—	—	1.4	—	78.7	21.3	25.7	1:1.1	2:30		
Turkey	24.7	28.6	8.5	22.3	—	—	1.2	—	65.6	34.4	50.9	1:1.3	2:30		
Trush	22.1	25.6	1.7	4.4	—	—	1.5	—	74.7	25.3	30.0	1:1.1	3:00		
Trout	17.5	20.3	0.7	1.8	—	—	0.8	—	81.0	19.0	22.1	1:1.0	3:00		
Turtle	16.2	18.7	1.1	2.8	—	—	2.9	—	79.8	20.2	21.5	1:1.2	2:15		
Veal	19.0	22.0	3.0	7.8	—	—	1.0	—	77.8	23.0	29.8	1:1.2	3:15		
Veal Kidney	22.1	25.6	2.7	7.1	—	—	1.2	—	74.0	26.0	32.7	1:1.1	3:00		
Venison	19.7	22.8	1.9	4.9	—	—	1.1	—	77.3	22.7	27.7	1:1.1	4:00		
White Fish	18.1	20.9	2.9	7.6	—	—	1.0	—	78.0	22.0	28.5	1:1.2	2:15		

F. ANIMAL PRODUCTS

Butter	1.1	86.1	226.6	—	—	10.8	89.2	227.8	0.4	1:81.0	3:00
Buttermilk.....	3.0	0.4	1.3	4.8	5.6	90.8	9.2	10.4	9.6	1: 3.0	2:00
Cream	2.5	18.7	49.3	4.5	5.3	71.5	28.5	57.5	1.7	1:11.0	2:15
Cheese, Cottage.....	21.0	0.9	2.6	4.3	5.0	38.8	29.2	32.0	3.0	1: 1.4	3:00
Cheese, Full Cream.....	25.2	30.6	80.4	—	—	47.1	61.1	109.6	0.9	1: 2.4	3:45
Cheese, Skim Milk.....	31.5	16.4	43.1	—	—	72.8	52.9	79.6	1.3	1: 2.5	3:45
Egg, entire.....	14.0	12.1	32.0	—	—	84.7	27.2	48.3	2.0	1: 1.9	3:00
Egg, white.....	12.4	14.4	5.0	—	—	84.7	15.3	14.9	7.0	1: 1.1	2:00
Egg, yolk.....	15.6	33.7	88.8	—	—	60.9	50.4	107.0	0.9	1: 3.3	2:30
Eggnog	5.0	6.0	16.0	27.1	31.5	60.9	39.5	53.4	1.8	1: 7.8	2:45
Eggs, each.....	22.6	15.9	41.9	—	—	60.5	39.5	68.2	1.4	1: 1.7	3:00
Eggs, white, each.....	13.3	0.2	0.6	—	—	85.9	14.1	16.1	6.0	1: 1.0	2:00
Eggs, yolk, each.....	9.3	15.8	41.3	—	—	83.9	16.1	52.1	2.0	1: 1.6	2:30
Eggs, poached, each.....	22.6	15.9	41.9	—	—	60.4	39.8	68.2	1.4	1: 1.7	3:00
Egg, omelet.....	10.8	7.0	18.4	—	—	82.2	17.8	30.0	3.3	1: 1.7	3:00
Koumiss	2.8	3.3	2.1	5.4	6.3	89.1	10.9	15.2	6.6	1: 3.8	1:45
Koumissnog.....	3.7	4.3	1.9	27.3	31.7	66.6	33.4	41.2	2.4	1: 8.9	2:30
Milk, whole.....	3.2	3.8	4.1	5.0	5.8	87.1	12.9	20.6	5.0	1: 4.0	2:15
Milk, skimmed.....	3.4	4.0	0.3	5.1	6.0	90.7	9.3	10.8	9.0	1: 2.7	2:00
Milk, mother's.....	2.3	2.6	3.7	6.2	7.1	87.5	12.5	19.4	5.0	1: 5.4	2:00
Oleomargarine.....	0.6	0.7	9.7	0.4	0.4	11.0	89.0	224.6	0.4	1:148	3:30
Whey	1.1	1.2	223.5	5.0	5.8	93.1	0.9	7.8	12.8	1: 6.2	2:00

G. LEGUMES

Bean Broth.....	2.4	2.8	—	0.4	0.5	96.2	3.8	3.3	30.3	1: 1.6	1:30
Bean Puree.....	7.1	8.3	0.2	20.4	23.7	68.3	31.7	32.7	3.0	1: 4.4	2:45
Beans, baked.....	6.8	8.0	2.5	19.5	22.9	66.4	33.6	37.5	2.7	1: 4.9	3:45
Beans, dried, raw.....	26.9	32.2	3.0	48.8	56.6	15.0	85.0	96.6	1.0	1: 3.2	3:00
Beans, hullless, canned.....	7.1	8.3	0.2	20.4	23.7	69.0	31.0	32.7	3.0	1: 4.3	3:30
Beans, Lima, canned.....	4.0	4.7	0.3	14.0	17.0	74.2	25.8	22.5	4.4	1: 6.4	2:45
Beans, Lima, dried.....	21.9	25.4	2.6	68.0	70.2	8.0	92.0	102.4	1.0	1: 4.2	—
Lentils, raw.....	25.9	30.0	2.2	53.0	61.4	12.0	88.0	97.1	1.0	1: 3.3	3:45
Lentils, cooked.....	7.3	8.5	0.1	19.5	21.0	69.1	30.9	31.7	3.0	1: 4.2	—
Peas, dried, raw.....	24.6	28.5	3.5	52.6	61.0	10.3	89.7	98.7	1.0	1: 3.6	—
Peas Puree.....	7.3	8.5	0.3	14.7	17.5	72.2	27.8	26.7	4.0	1: 3.7	2:45
Pea Soup.....	3.7	4.3	2.6	5.6	6.6	86.6	13.4	18.0	5.5	1: 3.6	1:30
Peanuts, raw.....	25.7	30.1	39.1	8.0	9.2	132.2	90.0	132.2	0.7	1: 3.5	4:00
Peanut Butter.....	20.0	23.2	31.0	19.5	22.9	17.0	83.0	127.6	0.7	1: 4.1	3:15

TABLE OF FOOD COMPOSITION, ETC.,—CONTINUED

FOOD SUBSTANCES	PROTEINS		FATS		STARCHES AND SUGARS (Carbohydrates)		SALTS	CELLULOSE	WATER	Per Cent Total Solids or Nutritive Value	Per oz. Total Calories or Fuel Value	Amount Contained in 100 Ounces	Calories	Proportion of Protein to Other Elements	Average Digestion Time (Stomach)	Hrs. Min.
	Per Cent	Calories in 1 oz.	Per Cent	Calories in 1 oz.	Per Cent	Calories in 1 oz.											Per Cent	Per Cent
H. COOKED FOODS																
BEVERAGES																
Cocoa	2.0	3.0	5.2	13.8	4.3	5.0	0.4	—	88.1	11.9	21.8	4.5		1: 5.9	200	
Cereal Coffee, Cream and Sugar.....	0.5	0.6	3.1	8.2	8.5	9.9	0.3	—	87.6	12.4	18.7	5.5		1:24.0	200	
CAKES																
Drop	7.6	8.9	14.9	39.2	60.6	70.3	0.8	0.8	15.6	84.4	118.4	0.8		1:11.0	300	
Fruit	5.8	6.8	11.0	29.1	63.0	74.1	0.9	0.5	18.8	81.2	110.0	0.9		1:14.0	400	
Jelly Roll	5.0	5.8	3.5	9.4	73.4	85.2	0.7	0.5	16.9	83.1	100.4	1.0		1:16.0	330	
Nut	11.8	13.7	3.6	9.5	64.8	75.3	1.0	0.5	18.3	81.7	98.5	1.0		1: 6.7	400	
Sunshine.....	3.7	4.4	4.6	12.1	63.0	74.0	0.6	0.3	27.8	72.2	90.5	1.1		1:19.0	230	
CUSTARDS																
Milk	5.3	6.2	5.1	13.6	3.7	4.4	0.2	—	85.7	14.3	24.2	4.0		1: 2.7	230	
Plain	6.5	7.6	1.4	3.8	21.2	28.4	0.1	—	70.8	29.2	39.8	2.5		1: 4.4	230	
Tapioca	3.2	3.8	1.8	4.7	27.7	32.2	0.3	—	67.0	33.0	40.7	2.2		1:10.0	300	
DESSERTS																
Apple Tart	1.5	1.8	0.3	0.9	30.1	35.0	0.4	1.0	66.7	33.3	37.7	2.6		1:22.0	245	
Brown Betty	3.1	3.7	2.1	5.7	34.3	39.8	0.2	—	60.3	39.7	49.2	2.0		1:12.0	300	
Farina, Blanc Mange.....	2.3	2.8	1.4	3.8	26.8	31.2	0.1	—	69.4	30.6	37.8	2.6		1:13.0	300	
GRAVIES AND DRESSINGS																
Brown Gravy	2.6	3.1	3.4	9.1	6.7	7.8	1.0	—	86.3	13.7	20.0	5.0		1: 5.0	230	
French Dressing.....	1.4	1.9	—	—	49.0	56.9	1.0	—	48.6	51.4	58.6	1.7		1:36.0	230	
Mayonnaise.....	11.3	13.1	7.9	20.9	4.9	5.7	1.0	—	74.9	25.1	39.7	2.5		1: 2.2	230	

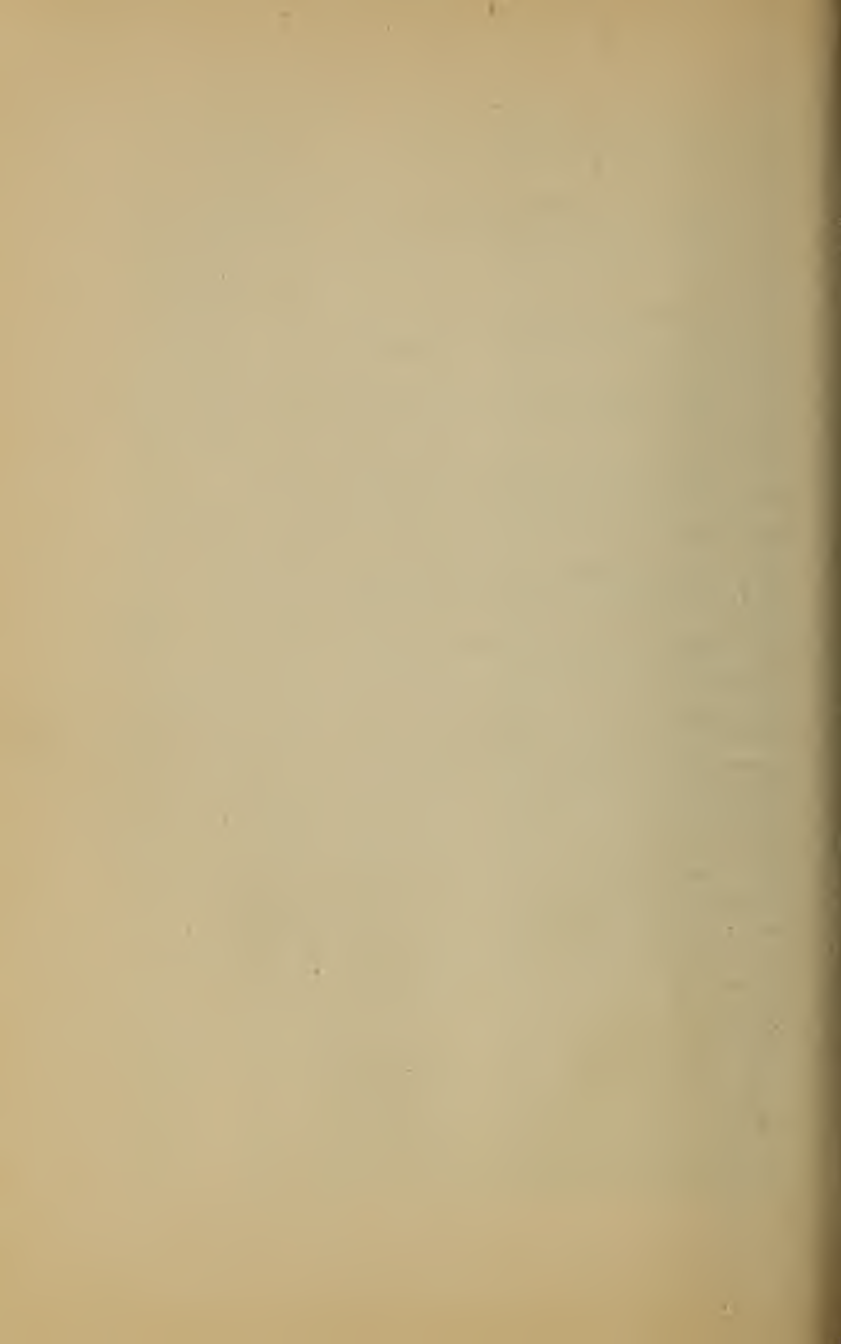
COOKED FOODS (CONT.)														
PIES														
Apple.....	3.1	3.6	9.9	26.1	43.0	49.9	0.8	1.0	42.2	57.8	79.6	1.2	1:18.0	3:30
Blackberry.....	4.4	5.2	3.9	10.5	47.2	54.8	0.5	1.5	47.5	52.5	70.5	1.4	1:11.0	3:00
Blueberry.....	4.4	5.2	4.8	12.7	42.5	47.4	0.6	0.9	46.8	53.2	65.3	1.5	1:12.0	3:00
Cherry.....	4.6	5.4	3.7	9.8	47.2	54.9	0.5	1.0	43.0	57.0	76.1	1.4	1:12.0	3:30
Custard.....	4.2	4.9	6.3	16.8	25.4	30.5	0.2	—	63.9	30.1	52.2	1.8	1: 8.5	3:00
Lemon.....	3.6	4.2	10.2	26.9	37.5	43.6	0.1	—	48.6	51.4	74.7	1.3	1:14.0	3:30
Pumpkin.....	4.6	5.4	6.6	17.4	48.1	55.8	0.2	1.0	39.5	60.5	78.6	3.5	1:13.0	3:30
PUDDINGS														
Apple Sago.....	1.6	1.9	0.3	0.9	25.4	30.3	0.2	—	72.5	27.5	33.1	3.0	1:17.0	3:00
Apple Tapioca.....	0.3	0.4	0.1	0.3	29.4	34.2	0.8	0.6	69.9	30.1	34.9	2.8	1:10.0	3:30
Bread.....	5.6	6.6	3.5	9.4	22.0	25.6	0.3	0.6	32.5	32.5	41.6	2.3	1: 5.8	3:00
Chocolate.....	0.3	7.4	1.1	3.0	25.3	29.4	0.2	—	67.1	32.9	39.8	2.5	1: 5.2	3:00
Cream Rice.....	2.6	3.1	1.8	5.2	25.4	28.5	0.3	—	69.9	30.1	37.8	2.6	1:11.0	2:30
Date.....	2.4	2.8	1.2	3.3	33.1	38.4	0.1	0.7	62.5	37.5	44.5	2.2	1:15.0	3:30
Fig.....	2.4	2.8	1.0	2.8	31.7	36.9	0.3	6.0	58.6	41.4	42.5	2.3	1:17.0	3:00
Fruit.....	3.2	3.8	0.5	1.4	28.9	34.6	0.4	1.0	66.0	34.0	39.8	2.5	1:10.0	3:00
Tapioca.....	3.3	3.9	3.2	8.5	28.3	32.9	0.3	—	64.9	35.1	45.3	2.2	1:10.0	3:00
Rice Custard.....	4.0	4.7	4.6	12.3	31.5	36.6	0.2	—	59.7	40.3	53.6	1.8	1:10.0	2:30
SALADS														
Apple and Celery.....	1.4	1.7	0.3	0.9	17.4	20.2	0.7	1.5	78.7	21.3	22.8	4.3	1:15.0	3:00
Banana.....	1.2	1.5	0.8	2.3	22.0	25.6	0.3	—	75.7	24.3	29.4	3.4	1:20.0	3:00
Beet.....	2.3	2.7	1.5	4.2	10.0	11.0	0.5	1.0	84.7	15.3	18.5	5.4	1: 6.6	3:15
Beet and Potato.....	2.4	2.8	2.1	5.7	13.4	15.6	0.6	1.0	80.5	19.5	24.1	4.0	1: 8.1	3:30
Cabbage.....	1.6	1.9	1.8	4.9	9.2	10.7	0.3	1.0	86.1	13.9	17.5	5.6	1: 8.6	3:30
Cauliflower.....	0.8	1.1	2.8	7.6	6.3	7.4	0.2	0.5	89.4	10.6	16.1	6.0	1:13.0	2:45
Celery.....	1.6	1.9	2.1	5.7	8.9	10.4	0.9	0.9	85.6	14.4	18.0	5.4	1: 9.0	3:30
Fruit.....	0.7	0.9	0.4	1.1	14.9	17.3	0.2	0.5	83.3	16.7	19.3	5.0	1:24.0	2:30
Lettuce.....	3.2	3.8	12.5	6.8	7.1	8.3	0.2	1.0	80.0	14.0	18.9	5.4	1: 4.3	2:30
Nut and Fruit.....	7.3	8.5	0.7	28.4	8.1	9.5	0.8	1.0	72.1	27.9	40.4	2.2	1: 3.6	3:30
Potato.....	7.5	8.7	3.4	9.2	15.1	17.6	0.9	0.4	72.3	27.3	35.5	2.7	1: 3.6	3:00
Tomato.....	0.7	0.9	0.9	2.4	4.9	5.7	0.6	0.3	92.6	7.4	9.0	11.0	1:10.0	2:15
Vegetable.....	2.2	2.6	1.4	3.9	9.9	11.5	0.7	0.9	84.9	15.1	18.0	5.4	1: 6.8	3:30
Waldorf.....	0.7	0.9	0.3	1.0	14.2	16.5	0.5	1.0	83.8	16.2	18.4	5.4	1:23.0	3:30
Soups														
Bean.....	4.0	4.7	0.3	0.9	13.0	15.1	0.2	—	82.5	17.5	20.7	5.0	1: 4.3	2:00
Bean and Tomato.....	3.9	4.6	0.3	1.0	12.2	14.2	0.3	—	82.6	17.4	19.8	5.0	1: 4.4	2:00

TABLE OF FOOD COMPOSITION, ETC.,—CONTINUED

FOOD SUBSTANCES	PROTEINS		FATS		STARCHES AND SUGARS (Carbohydrates)		SALTS	CRILU-LOSS	WATER	Per cent Solids or Nutritive Value	Per oz. Total Calories of Value	Amount Contain- ing 100 Calories	Proportion of Elements	Hrs. Min. Average Digestion Time (Stomach)
	Per cent	Calories 1 oz.	Per cent	Calories 1 oz.	Per cent	Calories 1 oz.									Per cent	Protein to Other Elements
SOUPS (CONTINUED)														
Cream of Barley	2.4	2.8	2.5	6.6	8.9	10.4	0.4	—	84.8	15.2	19.8	5.0	1: 6.3	2:30
Cream of Celery	2.1	2.5	2.8	7.5	5.0	5.8	0.3	—	89.8	10.2	15.8	9.5	1: 4.8	2:30
Cream of Corn	2.5	3.0	1.9	5.1	7.8	9.1	0.2	—	87.6	12.4	17.1	5.0	1: 4.9	2:15
Cream of Lentil	2.8	3.3	2.5	6.6	8.1	10.4	0.1	—	84.7	15.3	20.3	5.0	1: 5.4	2:30
Cream of Onion	2.8	3.3	2.3	6.2	8.9	10.4	0.1	—	85.9	14.1	19.9	5.0	1: 5.0	2:00
Cream of Pea	3.2	3.8	2.3	6.2	8.5	9.9	0.1	—	85.9	14.1	19.9	5.0	1: 4.4	2:15
Cream of Potato	2.4	2.8	2.1	5.7	10.6	12.3	0.2	—	84.7	15.3	20.8	5.0	1: 6.3	2:00
Cream of Rice	1.6	1.9	2.5	6.6	9.8	11.4	0.1	—	86.0	18.0	19.9	5.0	1: 6.3	2:00
Fruit	2.4	2.8	—	—	13.0	15.1	0.1	—	81.5	18.5	17.9	5.8	1: 7.7	2:00
Lentil	2.0	2.4	2.1	5.7	10.6	12.3	0.1	—	83.2	16.8	20.4	5.0	1: 8.4	2:30
Lima Bean	3.7	4.3	2.7	7.1	8.1	9.5	0.2	—	85.3	14.7	20.0	5.0	1: 3.9	2:15
Parsnip	2.3	3.7	1.7	4.7	9.8	11.4	0.1	—	86.1	13.9	19.8	5.0	1: 6.0	2:30
Pea	3.7	4.3	2.7	7.1	5.6	6.6	0.1	—	87.9	12.1	18.0	5.0	1: 3.2	2:00
Pea and Tomato	2.4	2.8	1.0	2.8	12.2	14.2	0.2	—	84.2	15.8	19.8	5.5	1: 6.5	2:00
Tomato Bisque	3.3	3.9	5.0	13.3	2.7	3.2	0.2	—	88.8	11.2	20.4	5.0	1: 3.3	2:00
Tomato Vermicelli	2.4	2.8	1.0	3.8	11.3	13.2	0.2	—	85.1	14.9	19.8	5.0	1: 6.2	2:00
Vegetable	1.6	1.9	1.7	4.7	8.1	9.5	0.3	—	88.3	11.7	16.1	6.2	1: 7.3	2:00
Vegetable Oyster	1.1	1.2	2.8	7.6	4.6	5.4	0.2	—	91.3	8.7	14.2	7.0	1: 7.2	2:00
SUGARS														
Chocolate Tablets	6.1	7.0	21.0	55.2	54.0	62.6	1.8	—	18.1	81.9	126.6	0.8	1:13.0	2:15
Brown Cane Sugar	0.4	0.5	—	—	95.1	110.3	0.7	—	3.8	96.2	110.8	0.9	1:24.6	1:30
Honey	0.4	0.5	—	—	81.6	94.7	0.2	—	17.8	82.2	95.2	1.0	1:20.5	2:00
Malt Honey	—	—	—	—	74.3	86.2	0.5	—	25.1	74.9	86.2	1.1	—	1:00
Maple Sugar	—	—	—	—	83.2	96.6	0.3	—	16.5	83.5	96.6	1.0	—	1:30
Maple Syrup	—	—	—	—	65.0	75.4	0.2	—	34.8	65.2	75.4	1.3	—	1:30
Granulated Sugar	—	—	—	—	100.0	116.0	—	—	—	100.0	116.0	0.8	—	1:30

(This table is a continuation of the one on the preceding page)

COOKED FOODS (CONT.)														
TOASTS														
Apple	2.3	2.7	2.1	5.7	31.2	36.2	0.4	0.6	63.4	36.6	44.6	2.2	1:15	3:00
Apricot	2.6	3.1	1.1	4.9	30.1	35.0	0.3	0.5	65.4	34.6	4.3	23.0	1:13	3:00
Banana	2.5	2.9	3.0	8.0	23.2	27.0	0.2	0.2	72.0	27.1	37.9	2.7	1:10	3:00
Blackberry	2.4	2.8	3.0	8.0	34.7	40.3	0.2	0.8	58.9	41.1	51.1	1.9	1:17	2:45
Blueberry	2.4	2.8	3.0	8.0	28.6	30.7	0.2	0.7	68.1	31.9	41.5	2.1	1:13	2:45
Cream	4.0	4.7	13.5	35.6	18.2	21.2	0.3	0.1	63.9	36.1	61.5	1.5	1:9	2:30
Grape	2.5	2.9	2.0	5.6	26.9	31.3	0.4	0.8	67.4	32.6	39.8	2.5	1:13	2:30
Gravy	4.0	4.6	7.9	20.9	25.3	29.4	0.2	0.1	62.5	37.5	54.9	1.8	1:9	2:30
Prune	2.4	2.8	2.1	5.7	33.1	38.4	0.2	0.3	61.9	38.1	46.9	2.1	1:15	2:45
Raspberry	2.6	3.1	2.9	7.8	28.9	33.6	0.2	0.9	64.5	35.5	44.5	2.2	1:13	2:30
Snowflake	7.3	8.5	10.7	28.4	17.9	20.8	0.2	0.1	63.8	36.2	57.7	1.7	1:5	2:30
Strawberry	2.5	2.9	2.3	6.3	30.3	35.2	0.1	0.2	64.6	35.4	44.4	2.2	1:14	2:30
Tomato	2.8	3.3	3.6	9.5	19.7	22.9	0.2	0.2	73.5	26.5	35.7	2.7	1:9	2:30



APPENDIX B

SPECIAL DIET LIST NO. I — KIDNEY DISORDERS

(LOW PROTEIN AND SALT-FREE DIETS)

This diet is indicated in all forms of kidney disorder—Bright's Disease, acute nephritis, chronic interstitial nephritis, arteriosclerosis, high blood-pressure, heart disease, etc. This "Low Protein Diet" is also valuable in nervous sick headache (migraine), acidemia, rheumatism, neuralgia, neuritis, and auto-intoxication.

1. **Fruits:** Ripe olives, grapefruit, lemons, oranges, cranberries, strawberries, blackberries, raspberries, gooseberries, blueberries, huckleberries, pineapples, watermelons, peaches, apples, pears, apricots, cherries, currants, plums, prunes, bananas, grapes, cantaloupes, dates, figs, raisins, dried fruits, and fruit juices.

2. **Vegetables:** Lettuce, cucumbers, spinach, asparagus, rhubarb, sorrel, greens, cabbage, sauerkraut, celery, tomatoes, Brussels sprouts, water cress, okra, cauliflower, eggplant, radishes, string beans, turnips, beets, carrots, onions, squash, pumpkin, mushrooms, artichokes, parsnips, green peas, green beans, potatoes, sweet potatoes, green corn, oyster plant, and vegetable soups.

3. **Nuts:** Chestnuts, coconuts, and pecans.

4. **Dairy Products:** Butter, milk, cream, buttermilk, and yolks of eggs.

5. **Cereals:** Arrowroot, breads (limited amount), corn-starch, cornmeal products, corn flakes, macaroni, oatmeal, rice, sago, tapioca, and Zwieback.

6. **Meats:** Bacon and oysters, other meats only in accordance with physician's orders. The legumes—dried peas, beans, lentils, and peanuts are to be regarded the same as meat—i. e., eaten only as ordered.

7. **Special Foods to Avoid:** Lean meats, fish, poultry, meat broths, all rich, highly seasoned foods, such as gravies, dressings, pastries, etc., including common salt and condiments, tea, coffee, shell fish, cheese, and whites of eggs. Avoid all foods containing much salt.

8. **Salt-Free Diet:** In acute or severe kidney trouble, a salt-free diet (or nearly so) can be had by subsisting on the following:

- a. Cereals—cooked without salt.
- b. Fresh fruits—raw, or cooked without salt.
- c. Fresh vegetables—raw, or cooked without salt.
- d. Eggs—raw, or cooked without salt.
- e. Milk, cream, buttermilk, and butter made without salt.

9. **Milk Diet:** When milk diet is ordered for Bright's Disease, it is given by special instructions, in accordance with the general régime as outlined in connection with the "Special Milk Diet."

10. **Water Drinking:** The amount of water which should be taken each day depends on the stage of the kidney disorder, the amount of urine passed, sweating, the presence of edema, dropsy, etc., and should be prescribed for each individual case. Carbonated waters are good, but most mineral waters are of little or no value aside from their laxative properties.

11. **Drugs:** In following a diet for kidney disorders, refrain from taking any and all drugs or medicines not prescribed by your doctor. Avoid the use of all forms of alcohol and tobacco.

12. **Acid and Alkaline Foods:** It is desirable to combat acidity of the blood-stream in Bright's Disease, and as an aid in this direction, alkalies are sometimes prescribed

for temporary benefit; but the best method of attaining this end is to eat more largely of the "alkaline" than of the "acid" foods—see tables of "Acid and Alkaline Foods."

SPECIAL DIET LIST NO. 2—DIABETIC FOODS

(LOW CARBOHYDRATE DIET)

Diabetes is a disease requiring special medical supervision for each individual case. We follow the Allen methods in the management of this disorder and the following diet list is merely suggestive as regards the general principles of diet in diabetes. It is not advisable that the patient should undertake to subsist on an exclusive meat or high protein diet.

1. **Flesh Foods:** All forms of meat—beef, bacon, poultry, fish, etc. With the exception of meat soups, sausages, roe shad, oysters, and clams, flesh foods are altogether free from carbohydrates, as also are eggs.

2. **Dairy Products:** Butter contains no carbohydrates—while milk, cream, buttermilk, and cottage cheese, have around 5 per cent.

3. **Cereals:** Boiled macaroni, boiled rice, also baked beans, and potatoes.

4. **Nuts:** The nuts are all available—except chestnuts—and include butternuts, pignolias, Brazil nuts, black walnuts, hickory nuts, pecans, filberts, almonds, English walnuts, beechnuts, pine nuts, pistachios, cocoanuts, and peanuts; running from 5 to 20 per cent carbohydrates.

5. **Fruits:** The fruits run from 5 per cent to 20 per cent of carbohydrates in the following order: Ripe olives, grapefruit, lemons, oranges, cranberries, strawberries, blackberries, gooseberries, peaches, pineapples, watermelons, apples, pears, apricots, blueberries, cherries, currants, raspberries, huckleberries, plums, bananas, and prunes.

6. **Vegetables:** The vegetables also run from 5 per cent to 20 per cent of carbohydrates and in the following order: lettuce, cucumbers, spinach, asparagus, rhubarb, sorrel, sauerkraut, green celery, oyster plant, tomatoes, Brussels sprouts, water cress, okra, cauliflower, eggplant, cabbage, radishes, string beans, pumpkin, turnips, squash, beets, carrots, onions, mushrooms, green peas, artichokes, parsnips, fresh Lima beans, green corn.

7. **Special Foods:** Gluten breads, gluten meals, olive oil, and gelatin. (Gluten meals contain varying amounts of carbohydrates.)

DIABETIC FOODS CLASSIFIED ACCORDING TO PER CENT OF CARBOHYDRATES ¹

5 Per Cent

Vegetables: Lettuce, cucumbers, spinach, asparagus, rhubarb, sorrel, sauerkraut, greens, celery, tomatoes, Brussels sprouts, water cress, okra, cauliflower, eggplant, cabbage, oyster plant, radishes, string beans.

Fruits: Ripe olives, grapefruit.

Nuts: Butternuts, pignolias.

Miscellaneous: Milk, cream, cottage cheese, buttermilk, oysters, roe shad, clams.

10 Per Cent

Vegetables: Turnips, beets, carrots, onions, squash, pumpkin, mushrooms.

Fruits: Lemons, oranges, cranberries, strawberries, blackberries, gooseberries, peaches, pineapples, watermelons.

Nuts: Brazil nuts, black walnuts, hickory nuts, pecans, filberts.

15 Per Cent

Vegetables: Artichokes, parsnips, green peas, green Lima beans.

¹ Reckon available carbohydrates in vegetables of 5 per cent group as 3 per cent, in 10 per cent group as 6 per cent.

Fruits: Apples, pears, apricots, blueberries, raspberries, huckleberries, cherries, currants.

Nuts: Almonds, English walnuts, beechnuts, pistachios, pine nuts.

20 Per Cent

Vegetables: Potatoes, baked beans, green corn.

Cereals: Boiled rice, boiled macaroni.

Fruits: Plums, prunes, bananas.

Nuts: Peanuts, cocoanuts.

The carbohydrate-free foods are: All meats, fish, poultry, bacon, eggs, butter, olive oil, and gelatin.

SPECIAL DIET LIST NO. 3—ANTI-TOXIC FOODS

(AUTO-INTOXICATION DIET)

This diet is arranged with a view of preventing intestinal fermentation and the undue increase of acidity in the blood-stream, and is indicated in acidemia (acidosis), auto-intoxication, intestinal toxemia, so-called rheumatism, neuritis, colitis (catarrh of the bowels), flatulency, etc.

1. **Fruits:** Ripe apples, ripe bananas, pears, peaches, melons, figs, dates, raisins, prunes, ripe olives, grapefruit, oranges, lemons, together with grape juice, blackberry juice, raspberry juice, and apple juice.

2. **Vegetables:** Baked potatoes, tomatoes, raw cabbage, celery, and vegetable soups.

3. **Cereals:** Hard breads, dextrinized cereals—such as Zwieback, toast, toasted flaked cereals, popped corn, rice biscuits, browned rice, gluten mush, macaroni, and oatmeal.

4. **Dairy Products:** Milk, cream, buttermilk, cottage cheese, butter, yolks of eggs, and malted milk.

5. Nuts: Blanched almonds, Brazil nuts, cocoanuts, roasted chestnuts, filberts, and pecans.

6. Foods to Avoid: Meats of all sorts, fish, fowl, oysters, shell fish, lobsters, crabs, whites of eggs, old cheese, rich and highly seasoned foods, meat gravies, pastries, tea, coffee, and condiments. Eat sparingly of the legumes.

It is well to subsist on a diet approaching the "Low Protein Diet"—see "Special Diet List No. 1."

In dieting for auto-intoxication it should be remembered that frequent bowel movements are desirable. Go to stool at least twice a day. Do not take laxatives or cathartics unless prescribed by your physician. Mineral oil and bran are not cathartics.

Eat more largely of those foods which assist in decreasing the amount of acid in the blood-stream—see accompanying comparative table of acidifying and alkalinizing foods.

ACIDIFYING AND ALKALINIZING FOODS

With the possible exception of fats and sugars, practically every article of one's diet contributes either directly or indirectly to acidifying or alkalinizing the blood. In order to enable the patient more fully to understand this important principle of scientific dietetics, we have arranged the following table of comparisons, which will show at a glance what will be the final digestive outcome of the various foods—as regards the acidity and alkalinity of the blood-stream.

Space will not permit the listing of a great number of individual foods, but the general classes noted will enable the patient easily to ascertain what group any commonly used food belongs to, and so be able to arrange his diet accordingly.

Table below shows the end-products of digestion as regards the acidity and alkalinity of the blood. Fats and sugars are practically negative and are therefore not included in this classification:

Foods which Tend to Acidify the Blood

1. **Animal Foods:** All forms of flesh foods, fish, fowl, etc., including all kinds of meat broths, soups, beef tea, bouillon, etc.
2. **Eggs.**
3. **Breadstuffs:** All kinds of breads, whether made of wheat, rye, or corn, crackers, toasts, griddle cakes, etc.
4. **Pastries:** All sorts of pies and cakes (except fruit pies, and other desserts containing milk or sour fruits).
5. **Cereals:** Rice, oatmeal, and breakfast foods of all kinds, including the flaked and toasted breakfast foods.
6. **Miscellaneous:** Peanuts, plums, prunes, and cranberries. (Plums and cranberries come under this heading because of their benzoic acid, which the body cannot fully oxidize.)

Foods which Tend to Alkalinize the Blood

1. **Dairy Products:** Milk, ice cream, cottage cheese, cheese, buttermilk, etc.
2. **Soups:** All forms of vegetable and fruit soups and broths.
3. **Fruit Juices:** All the fresh fruit juices (except plums).
4. **Fresh Fruits:** All fresh fruits—sweet and sour—(except plums and cranberries).
5. **Dried Fruits:** All dried fruits (except prunes)—especially figs, raisins, dates, and currants.

6. **Vegetables:** All kinds—especially beets, carrots, celery, and lettuce.
7. **The Legumes:** Beans, peas, and lentils.
8. **Nuts:** All the nuts belong in this column—including almonds and chestnuts.
9. **Miscellaneous:** Potatoes and bananas.

SPECIAL DIET LIST NO. 4—ANTI-ACID FOODS

Foods which lessen the secretion of gastric juice and the formation of hydrochloric acid and which are indicated in most cases of hyper-acidity, sour stomach, heartburn, ulcers, acid dyspepsia, etc.

1. **Fats:** Flesh fats, butter, cream, ice cream, yolks of eggs, ripe olives, olive oil, Brazil nuts, pine nuts, and pecans.

2. **Proteins:** Lean meats, cottage cheese, gluten mush, whites of eggs, buttermilk, milk, eggnog, puree of peas, beans, and lentils. Finely ground nut meats.

3. **Frozen Foods:** Ice cream, frozen malted milk, frozen malt, ice-cold drinks, etc. These cold foods are especially valuable in ulcer of the stomach and bowels.

4. **Liquid Foods:** Rice and gluten gruels, potato porridge, legume soups and broths, vegetable soups and broths, koumiss, chicken broths, meat soups, and broths.

5. **Dextrinized Cereals:** Zwieback and toasts, toasted flaked cereal foods, toasted cereals, browned rice.

6. **Fruits:** Steamed figs, fig marmalade, prune marmalade, pears, baked sweet apples, and raisin pulp.

7. **Avoid:** All highly acid fruits, too much meat, all coarse vegetables, and all rough foodstuffs, as well as seeds, pits, and other irritating edibles, such as pickles and preserves. (In case of high acidity of the stomach, sometimes the sipping of ice-cold liquids at meals or just before, is highly beneficial.)

SPECIAL DIET LIST NO. 5—ACID-ENCOURAGING FOODS

So-called peptogenic foods—those foods which are thought to favor an increased secretion of the gastric juice and are indicated in cases of poor appetite, slow digestion, gastric dilatation, and too little hydrochloric acid.

1. **Concentrated Fruit Sugars:** Malt preparations, prunes, figs, raisins, dates, and dried sweet fruits.
2. **Concentrated Fresh Fruit Juices:** Apple, blackberry, blueberry, grape, orange, peach, pear, pineapple, plum, raspberry, and strawberry.
3. **Concentrated Vegetable Juices:** Soups and broths of the following vegetables—asparagus, beans, celery, peas, corn, potatoes, spinach, tomatoes, and carrots.
4. **Well-Dextrinized (Baked or Toasted) Cereals:** Zwieback or toasted bread, toasted crackers, well-parched corn, toasted flaked cereals, thoroughly baked mushes, browned rice, etc.
5. **Meat Broths, Soups, Bouillon, Etc.:** Egg yolks, buttermilk, potatoes, nuts (well masticated), jellied eggs, most fruits, fruit jellies, fruit marmalades, and legume purees.
6. **Avoid:** Excessive use of fats and salt. Avoid overeating and drinking too freely at meals. Masticate thoroughly.

SPECIAL DIET LIST NO. 6—LAXATIVE FOODS

(ANTI-CONSTIPATION DIET)

The successful treatment of chronic constipation requires, in addition to the diet, that the patient should

carefully carry out these general rules, which are here-with presented, and, in addition any and all special instructions given by the physician. Do not take any laxatives (except mineral oil when ordered) unless they have been prescribed for you.

The following list of foods are laxative in their action and are indicated in all cases of chronic constipation, "biliousness," and sluggish action of the bowels.

1. Sugars: All forms of sugar, especially fruit sugar, marmalade, molasses, honey, syrup, and malt. All the concentrated fruit juices. Sweet fruits, such as figs, dates, raisins, prunes, fruit jellies, etc.

2. Sour Fruits: All sour fruits and fruit acids, such as apples, grapes, peaches, plums, tomatoes, grapefruit, currants, gooseberries, melons, and all berries with seeds. Fruit juices, especially from sour fruits—grape juice, apple juice, lemonade, etc.

3. Foods Rich in Fats: Butter, cream, eggs, eggnog, ripe olives, nuts—especially pecans, Brazil nuts and pine nuts; also olive oil and bacon.

4. Foods Rich in Cellulose: Wheat flakes, asparagus, cauliflower, spinach, sweet potatoes, green corn and popcorn, graham flour preparations, and oatmeal foods, whole wheat preparations, bran bread, apples, blackberries, cherries, cranberries, melons, oranges, peaches, pineapples, plums, whortleberries, raw cabbage, celery, greens, lettuce, onions, parsnips, turnips, oyster plant, Lima beans, and peanuts.

5. Miscellaneous Foods: Buttermilk, koumiss, meat broths, vegetable soups, cereals cooked with one-third bran, gingerbread, fig puddings, gelatins, and agar-agar.

6. Avoid: Tea, coffee (unless very weak), cocoa, chocolate, alcohol, much lean meat, rice, tapioca, farina, cheese, most nuts, sweet milk, eggs, salted meats, fried foods and rich desserts, puddings, and pastries.

7. Remember: That a glass of cold water taken the first thing on getting up in the morning, and some fresh fruit on retiring is very helpful in many cases. Also remember that you can take one to three tablespoonfuls of mineral oil once or twice a day for considerable periods of time without doing any harm in the treatment of constipation.

HOME TREATMENT OF CONSTIPATION

1. On Rising in the Morning: Remove the Moist Abdominal Bandage; drink two-thirds of a glass of cold water; and spend 15 to 20 minutes as instructed by the physical director, in the following exercises, before dressing: Abdominal lifting with deep breathing, auto-massage, leg raising, trunk twisting, trunk bending—forward and to sides, lying down for the trunk raising, and sitting for the trunk circumduction. Immediately following these exercises, go to stool. Have feet raised from floor 8 or 10 inches, so as to stimulate the squatting position.

2. Breakfast: Should include bran or bran bread, and two or three of the following foods: Apples with skins, grapefruit, cranberries with skins (but little sugar), figs, and other foods included in "Special Diet List No. 6." Immediately after breakfast walk 15 minutes in the open air, practicing deep abdominal breathing. If the results at stool before breakfast were not satisfactory, vaseline rectum and go to stool again.

3. Lunch and Dinner: Lunch should consist of fruit only, while dinner should include bran bread and two of the following foods: Spinach, celery, carrots, parsnips, squash, and cabbage. For additional dinner foods consult "Special Diet List. No. 6."

4. Before Retiring: Walk in the open air for 15 minutes; after undressing exercise same as morning; and on retiring, apply the Moist Abdominal Bandage as directed below.

5. Directions for Applying Moist Abdominal Bandage: Spread out the flannel bandage and over it place the mackintosh. Wring dry the cotton strip from cold water, and spread it over the mackintosh. Wrap all three layers, the

wet cloth next the skin, closely about the body, so as to prevent the air from getting under it. Be sure that the feet are warm while adjusting the bandage. In the morning remove the bandage, and rub the skin briskly with a Turkish towel dipped in cold water, until the skin is pink and dry. The cotton strip should be boiled every other day to avoid skin eruptions.

6. **Recipe for Bran Bread:** Two eggs, beaten separately; $\frac{3}{4}$ cup of molasses, plus 1 round teaspoonful soda; 1 cup of sour cream; 1 cup of sultana seedless raisins; 1 cup of wheat flour, plus 1 heaping teaspoonful baking powder; 2 cups of bran; stir well and bake 1 hour.

SPECIAL DIET LIST NO. 7—GASTRO-INTESTINAL DISORDERS

(ANTI-LAXATIVE FOODS)

The following foods are more or less constipating and are therefore indicated in such intestinal disorders as diarrhea, dysentery, mucous colitis, catarrh of the bowels, etc.

1. **Liquid Foods:** Soups, gruels (strained), cocoa, boiled milk, malted milk, weak tea, and blackberry juice.

2. **Semi-Liquid Foods:** Whites of eggs, soft eggs, egg-nog, strained cream of wheat, ice cream, and custards.

3. **Cereals:** Farina, rice, fine flour white bread, corn-starch, arrowroot, and tapioca puddings.

4. **Meats:** Minced chicken, lean meats (chopped).

5. **Miscellaneous Foods:** Mashed potatoes, baked potatoes, Iceland moss, gelatin, and gluten mush.

6. **Avoid:** All condiments, coarse foods, and food containing seeds. Meats must be scraped and vegetables must be pureed. (In cases of colitis, the diet must be adapted to the individual patient.)

SPECIAL DIET LIST NO. 8—GASTRIC ULCER

In general, ulcers of the stomach do well on the anti-acid foods of "Special Diet List No. 4." The following special diet and régime is advised for acute and serious cases:

1. **Frequent Feeding:** Feed the patient every two hours from 6:00 A. M. to 8:00 P. M. As a rule, such patients are resting in bed during this régime.

2. **Alkalies:** Give 10 grains of light calcined magnesia and 10 grains of bicarbonate of soda every four hours. This may be alternated with 20 grains of bismuth subcarbonate every four hours.

3. **Special Ulcer Diet:** The following foods should be given at the two-hour interval feedings: Milk (half and half); strained gruels, soft eggs, custard, junket, buttered toast, mashed potatoes, eggnog, strained fruits, crackers and milk, minced chicken, soups, broths, ice cream, olive oil, cottage cheese, frozen malted milk, and buttermilk.

SPECIAL DIET LIST NO. 9—GOUT

(PURIN-FREE FOODS)

While the low protein diet and the anti-acid diet are of general value in the management of gout, nevertheless, the chief aim of the diet should be to supply foods which are free from "purin" and other ancestors of uric acid and its chemical cousins. The following diet is advised in gout:

1. **Purin-Free Foods:** Milk, cream, butter, buttermilk, cheese, eggs, farina, rice, hominy, flour, bread, cauliflower, eggplant, cabbage, lettuce, and sugar.

2. Foods Containing a Small Amount of Purin: Those containing the smallest being named first—potatoes, asparagus, lentils, peas, oatmeal, beans, and codfish.

In the acute stage of gout, use only foods in Group 1—purin-free. Later, foods in Group 2 may safely be added.

3. Foods to Avoid: All flesh foods, meat broths, rich sauces, gravies made from meats, peas, beans, lentils, asparagus, onions, oatmeal, tea, coffee, cocoa, malt liquors, and other forms of alcohol, especially beer. Most patients find it necessary to refrain from all condiments and such fruits as strawberries and oranges, also the cucumber. Use salt sparingly; avoid alkalies and alkaline waters.

4. Important: There is no essential difference in the purin content of the different meats, chicken, or fish. White meat is just as bad as red meat; sweetbreads, liver, and the flesh of young animals contain even larger amounts of purin bodies.

SPECIAL DIET LIST NO. 10—LIVER DISORDERS

(LOW FAT AND CARBOHYDRATE DIET)

The following diet is indicated in cases of chronic "biliousness," gall bladder trouble, chronic dyspepsia, and cirrhosis of the liver:

1. Diet in General: Weak tea and crackers—little sugar, toast, oatmeal, milk, soups, poached eggs, baked apples, meats sparingly, custards, buttermilk, light and tender vegetables, potatoes, rice, sago, tapioca, fresh and stewed fruits.

2. Diet Low in Fats and Sugar: Fat-free soups: Vegetables, fresh and cooked, except peas, carrots and sweet vegetables; oranges, lemons, and grapefruit, and unsweetened stewed fruit. Cereals—wheat, barley, rice, sago, and tapioca. Meats—lean beef, lamb, and chicken. Desserts—acid fruits and fruit gelatins. A reasonable amount of water should be taken each day.

3. **Avoid:** Fats and oils, sugars and candies, mutton, liver, pork, calves' brains, oily fish, egg yolks, sweet fruits, and vegetables, pastries, vinegar, spices, and condiments; also, tea, coffee, tobacco, and alcohol.

4. An attack of biliousness is often helped by a brisk cathartic—salts or castor oil, followed by a few days of fasting or subsisting on an exclusive diet of fruits or fruit juices.

SPECIAL DIET LIST NO. II—OBESITY

(ANTI-FAT OR REDUCING DIET)

In carrying out the "reducing régime" it is essential to follow the doctor's orders in every detail of treatment in addition to the prescribed diet. The general principles of the reducing régime embrace the following:

1. **Daily Ration:** Cut your usual daily ration down at least one-half. Obesity patients should limit their diet to about 800 or 1,000 calories a day.

2. **Monotonous Diet:** Restrict the diet to two or three articles.

3. **Fats and Sugars:** Avoid all fatty, fried, and sweetened foods, including candies and sugars.

4. **Starches.** Avoid starchy foods—breads, cereals, pastries, and desserts.

5. **Liquids:** Partake sparingly of liquid foods, but do not restrict the water intake too much.

6. **General Diet:** Select the diet from the following: Buttermilk, hard breads, eggs, lean meats, vegetable broths, gluten mush, sour apples, and sour fruits, lemons, celery, tomatoes, and greens.

7. **Avoid:** All fattening foods, especially those listed under "Special Diet Lists No.'s 12 and 13."

SUGGESTIVE REDUCING DIET

(DR. LENA K. SADLER'S DIETARY)

This diet is for the systematic treatment of obesity and should be continued not longer than two months.

1. **Breakfast:** One glass of lemonade (without sugar) or one cup of coffee (no cream and one teaspoon sugar).

2. **Lunch:** Fresh fruit; varieties allowed, one only. Apples, peaches, oranges, grapefruit, strawberries, raspberries, blueberries (no sugar). All the salad you wish (without dressing of any kind) — only salt is allowed.

3. **Dinner:** Clear soup or broth (small serving). Abundant green vegetables, prepared without butter, oil, or milk. Those allowed are spinach, onions, string beans, lettuce, celery, cresses, white cabbage, asparagus, cauliflower, tomatoes, and radishes. One or two glasses of lemonade (without sugar), or one glass of buttermilk, or one glass of skimmed milk. Three ounces of lean beef, mutton, or lamb, and one slice of bran bread. Sour pickles.

SPECIAL DIET LIST No. 12—FATTENING
FOODS

(RICH FAT AND CARBOHYDRATE DIET)

This diet is indicated in cases of defective metabolism, emaciation, convalescence from severe illness, and anemia.

1. **Foods Rich in Fat:** Butter, ripe olives, olive oil, fat meats, Brazil nuts, pecans, pine nuts, corn products, oatmeal, cheese, milk, cream, ice cream, egg yolks, and milk shake (half cream).

2. **Foods Rich in Starch:** All of the cereals, breads, cakes and pastries; especially rice, arrowroot, sago, and corn-starch preparations, and legumes — peas, beans, lentils, and peanuts.

3. **Foods Rich in Sugar:** Sugars, syrups, malt, honey, candy, beets, sweet fruits, figs, dates, prunes, and desserts.

4. **Miscellaneous:** Potatoes, green fruits and vegetables for their salts and iron; with the normal amount of meat and other proteins. Foods easy of digestion are valuable.

5. **Foods Rich in Iron:** All foods rich in iron are of special value. For list of such foods see "Special Diet List No. 13."

SPECIAL DIET LIST NO. 13—ANEMIA

(FOODS RICH IN IRON)

This diet is suggested for those patients with a low hemoglobin and for those suffering from various forms of anemia. This is designed to be a special blood-building diet.

1. **Fattening Foods:** In a general way the fattening foods of "Special Diet List No. 12" are useful in these cases.

2. **Protein Foods:** Foods rich in protein, but which are calculated to combat intestinal toxemia are indicated, such as: Malted milk, egg yolks, puree of peas, beans, lentils, potatoes, and dairy products.

3. **Special Foods Rich in Iron:** The following foods, rich in iron, are especially indicated. Those foods containing the most iron are named first: Spinach, egg yolks, asparagus, beef, cabbage (outside leaves); dandelion greens, oranges, apples, red cherries, unpeeled almonds, strawberries, tomatoes, beets, carrots, lentils, beans, fish, peas, potatoes, cereals, bread, raspberries, figs, and milk.

4. In some cases it is necessary to administer iron hypodermically, or by mouth.

SPECIAL DIET LIST NO. 14—"REST CURE"

(THE MILK AND FRUIT-JUICE REGIME)

The "Rest Cure" diet or the "Milk and Fruit Régime" should not be confused with the old so-called milk diet. This new "milk and fruit diet" is used in connection with the "Rest Cure"—the patient remaining in bed and "feeding" according to the schedule. This diet is also of great value in those cases where it is desired to bring about a change in the "intestinal flora"—where it is desirable to starve out and drive out the more vicious and harmful bacteria so commonly inhabiting the bowel tract. As a general rule the following schedule is advised:

1. **First Two Days:** For the first two days take only orange juice—two dozen a day—with hot water in abundance.

2. **Third Day:** On the third day, give whole milk and fruit juice, as follows: One glass of whole milk sipped through a straw every hour. With each glass of milk the juice of one-half lemon and the juice of one whole orange (without sugar) should also be sipped through a straw—taking three sips of milk, one sip of fruit juice, etc.

3. **Fourth Day and After:** On the fourth day carry out the same program, only make the interval forty-five minutes instead of one hour. To the four or five quarts of whole milk to be taken each day, add cream, gradually, in increasing quantities until the mixture contains from one-fourth to one-third cream. In addition to this milk and cream mixture, the lemon and orange juice is continued just as directed for the third day's feeding. If the bowels are too loose, decrease the amount of lemon juice, as that is more laxative than the orange juice.

4. **Feeding Intervals:** As a rule it is best to start the "feedings" at 7:30 A. M. and "feed" every forty-five minutes to one hour until 7:30 P. M.

5. **Quantity of Milk:** A small amount of milk is constipating, but a large amount is laxative. In this régime it is necessary to take four to six quarts of milk every twenty-four hours and fruit juice as prescribed.

6. **Vegetables:** Once a day, say at 2:00 P. M., lettuce or celery may be added or given in the place of the fruit juices for those who prefer it.

7. **In Case of Trouble:** If the schedule in any way disagrees notify your doctor. Nausea is often overcome in the early days by increasing the milk.

SPECIAL DIET LIST NO. 15—FRUIT DIET

Indicated for temporary use in auto-intoxication, "biliousness," etc., and as a substitute for "fasting."

1. **Fruit Juices:** Grape, apple, raspberry, blackberry, fruit nectar, lemonade, orangeade, etc.

2. **Fresh Fruits:** Apricots, oranges, figs, lemons, dates, melons, pears, peaches, grapefruit, pineapples, plums, cherries, berries, apples, raisins, grapes.

3. **Cooked Fruits:** Baked apples, baked pears, prunes, steamed figs, stewed raisins, stewed pears, peaches, plums, cherries, and fruit jelly.

SPECIAL DIET LIST NO. 16

(LACTO-FARINACEOUS DIETARY)

This diet is indicated in the case of patients requiring an anti-toxic dietary, who are able to digest milk well, but who do not tolerate fruits and vegetables, and may profitably be employed for short periods.

Lacto-Farinaceous Foods: Zwieback, beans, soups and purees; peas, soups and purees; lentils, soups and purees; koumiss with cream, butter, potato puree, cereal and milk puddings, toasted corn flakes, rice, macaroni, tomatoes, buttermilk, cottage cheese, cream toast, creamed potatoes, and cream sauces.

SPECIAL DIET LIST NO. 17—RAW FOODS (THE VITAMIN DIETARY)

In recent years we have come to recognize that foods contain important elements of nutrition which are not a part of the nutrition value. These substances are concerned in metabolism and are known by the class name of *vitamins*. They are largely found in raw (uncooked) foods of the following classes, and are indicated in all cases of scurvy, rickets, pellagra, and other conditions of disturbed nutrition.

1. **Dairy Products:** Milk, cream, buttermilk, butter, and raw eggs. Even pasturization does not wholly destroy the vitamins of milk.

2. **Fruits:** All of the fresh, raw fruits, and fruit juices, particularly oranges, lemons, grapefruit, and tomatoes.

3. **Vegetables:** All fresh, raw vegetables, such as celery, cold slaw, etc.

4. **Nuts:** All classes of nuts which are eaten in a raw state.

SPECIAL DIET LIST NO. 18—FEVERS (LIQUID AND SOFT DIETS)

1. **Soups and Gruels.** Chicken broth, vegetable broths, fruit soup, bean broth; barley, oatmeal, rice, corn flakes, and potato gruels.

2. **Liquid Foods.** Milk, cream, buttermilk, milk shake, malted milk, cocoa, eggnog, lemonade, orangeade, and fruit juices. As a rule, give one glass of water each hour.

3. **Soft Diet.** Soft eggs, baked potatoes, prunes, buttered toast, cream toast, junket, stewed fruit sauces, scraped meat, cottage cheese, and ice cream.

SPECIAL DIET LIST NO. 19—DRY DIET

The dry diet is indicated in gastric dilatation and atony of the stomach and is designed to prevent overloading.

Dry Diet. Toasted flaked cereals, rice biscuit, browned rice, corn bread, baked potatoes, popped corn, parched corn, figs, Zwieback, dry toast, toasted crackers, yolks of hard-boiled eggs, baked bananas, and raisins.

SPECIAL DIET LIST NO. 20—TUBERCULOSIS

This diet should be prescribed for each patient and is based on the following general diets:

1. **Fattening Foods.** See "Special Diet List No. 12."
2. **Blood-Making Foods.** See "Special Diet List No. 13."
3. **Milk and Fruit Diet.** See "Special Diet List No. 14."
4. **Fever.** During fever use "Special Diet List No. 18."

SPECIAL DIET LIST NO. 21—SKIN DISEASES

A special non-irritating diet is indicated in such skin disorders as eczema, acne, psoriasis, urticaria, and furunculosis.

1. Avoid special foods which experience shows are trouble makers, such as shell fish, buckwheat, and strawberries, in erythemas and urticaria.

2. Avoid foods which produce intestinal indigestion; select foods along lines of "Special Diet List No. 3."

3. Avoid overeating and reduce the proteins in the diet. Avoid fried foods and other rich viands. Reduce or eliminate the salt.

4. Some skin disorders are wonderfully helped by going on an exclusive rice diet for several days.

THE ACNE REGIME

1. Cleanse face with cleansing face cream.

2. Steam with hot towels for fifteen minutes.

3. Remove blackheads by making pressure with the aid of a clean handkerchief.

4. Thoroughly cleanse face with a good skin soap.

5. Rinse with hot soft water.

6. Rinse with soda solution.

(1 round teaspoonful soda to 1 pint warm water.)

7. Apply ointment as prescribed. Various ointments may be used from time to time according to conditions present.

8. In the morning simply cleanse with cleansing face cream.

9. Dust with rice powder.

10. Take course of acne vaccines as prescribed. Many skin disorders such as acne are caused by a combination of influences such as the diet, circulation, defective elimination, and sluggish skin. The cure of skin disorders often depends on the thorough carrying out of all the directions given by the physician in addition to conscientious dieting.

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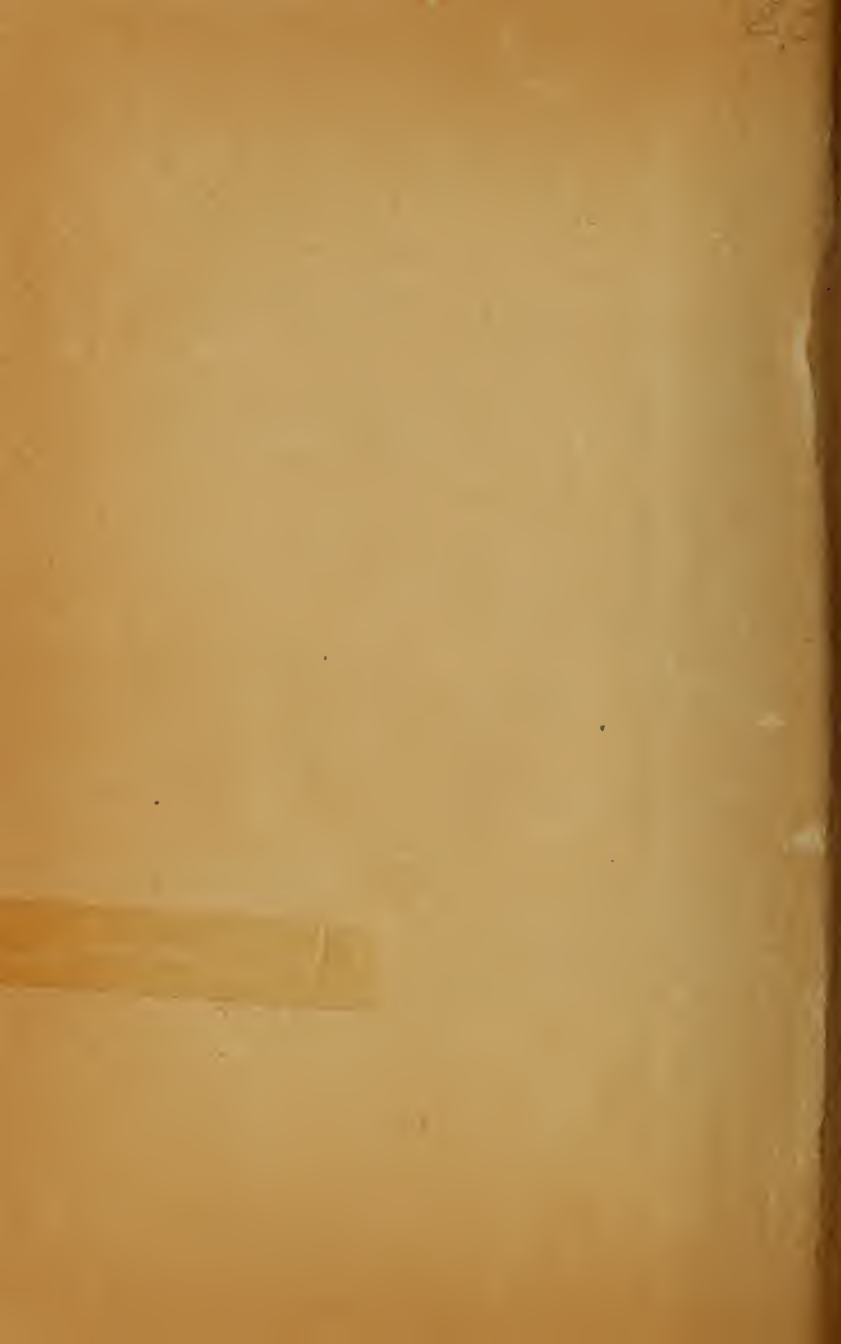
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